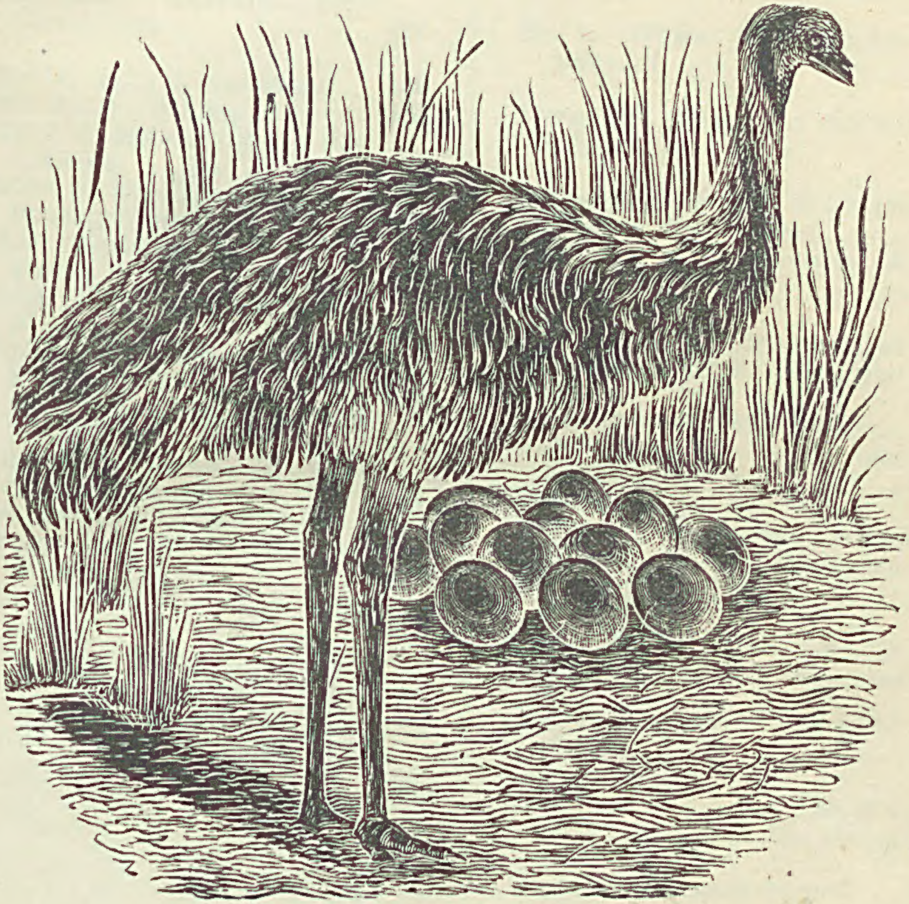
The Emu

A Quarterly Magazine to popularise the Study and Protection of Native Birds and to record Results of Scientific Research in Ornithology.

VOL. XXVII.—1927-28.



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Official Organ of the
Royal Australasian Ornithologists' Union
376 FLINDERS STREET, MELBOURNE.

SYDNEY
THE AUSTRALASIAN MEDICAL PUBLISHING COMPANY,
LIMITED
Seamer Street, Glebe, N.S.W.
1928.

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NATIONAL MUSEUM · VICTORIA

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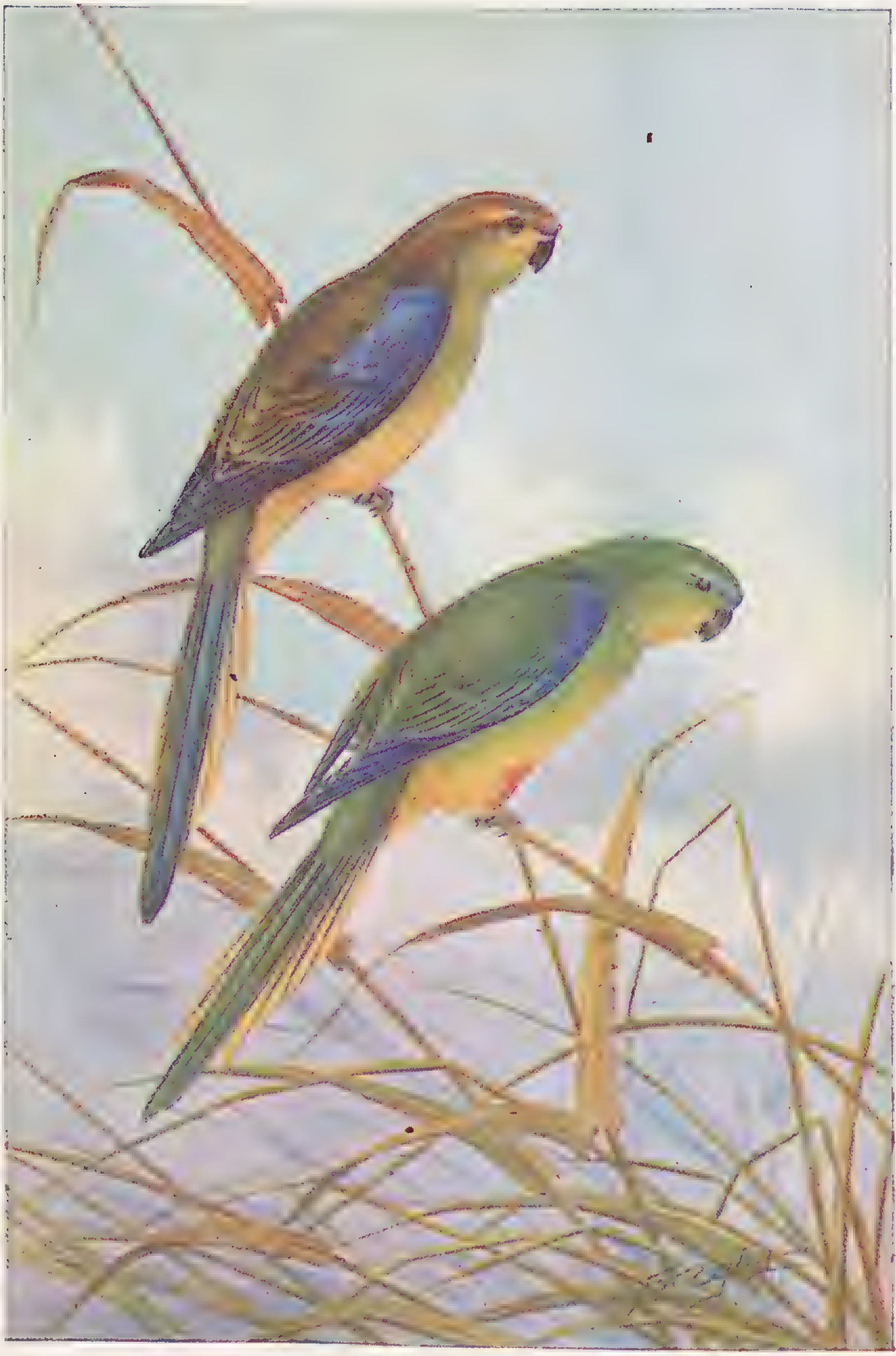

GRASS-PARROTS

1/2

Upper ♂ Blue-winged Parrot (*Neophema chrysostoma*).
Lower ♂ Orange-breasted Parrot (*Neophema chrysogaster*).

The Emu
OFFICIAL ORGAN OF THE
ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION

"Birds of a Feather."

Vol. XXVII] JULY, 1927. [Part 1

Two Neophema Parrots.

By E. Ashby, C.F.A.O.U., Blackwood, South Australia.

The Orange-breasted Grass-Parrot (*Neophema chrysogaster*)* shares with the Scarlet-chested Grass-Parrot (*N. splendida*) the distinction of being one of the rarest and least-known of the seven brilliant little birds included in the genus. In addition, both species are among the most radiant birds on the Australian list, as may be appreciated by a study of the coloured plates in this and the April issues of *The Emu.*

So far as South Australia is concerned, it would appear that the Scarlet-chest is always present on some of the interior sheep-runs, whereas the species with the beautiful orange-red on the lower portion of the breast was not recorded over a long period of years. John Gould, who visited South Australia in winter—he was in Adelaide in June, 1839—found *N. chrysogaster* abundant on flat, marshy ground bordering the coast between Port Adelaide and Holdfast Bay (now Glenelg). Count Salvadori records two examples sent to the British Museum from this State by Sir George Grey (1841-1845); and there is in the S.A. Museum an example obtained in March, 1863—no locality given. On 30th November, 1886 (not 1885, as previously published), I found these charming little Parrots in numbers feeding on the flats behind the sandhills at The Grange, and in company with the late James G. Macdougall collected two examples. One is now in the S.A. Museum and the other in the Tring collection; these specimens were very fat and difficult to skin. This evidently was the locality where Gould met with them 47 years earlier.

Nothing further was heard of the species in this State for another 33 years. Then (in 1919) Dr. A. M. Morgan found a flock of 20 to 30 in and around the township of Beachport, in the south-east of South Australia, and shot one out of a flock of 30 sitting on a wire fence. During the following week he saw numbers of the parrots in flocks of from 20 to 30, extending from Beachport to Robe. "I saw in all," Dr. Morgan says, "several hundreds of the birds, and assuming that they were equally distributed between Beachport and Robe, there must have been several thousands." The next occurrence is the receipt of a specimen from Robe by the S.A. Museum on May 15, 1926. Then, during the first week of November, 1926, Morgan, Sutton and Parsons met with a flock numbering 25, also at Robe.

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* Mr. Ashby prefers "Orange-bellied" as a vernacular name for this species.—Editor.

Authentic occurrences of the Orange-breasted Parrot in Tasmania, since Gould saw them in 1839, are extremely few. All the examples of *Neophema* that have been sent to me for identification, both from southern and northern Tasmania, have proved to be *N. chrysostoma.* There have been several supposed records published in *The Emu,* but as none of these was authenticated by a skin, we should be unwise to accept them. In 1916 I met the gentleman who, near his own home in the Midlands, some years previously, shot the specimen now in the Tasmanian Museum, Hobart. He informed me that he had seen none for some years, and stated that the spreading of poison for rabbits largely accounted for the disappearance of the Parrots.

I hesitate to express opinions founded on the limited data available, but would stress two interesting observations. The first is that *N. chrysogaster* appears to be a coastal-loving species in South Australia. The late J. G. Macdougall in his diary, besides confirming the date when I shot the two examples at The Grange in 1886, refers to two additional occurrences in the following words: "24th Dec., 1886: In the afternoon went to Lighthouse (Edithburg); shot *Euphema aurantia,* plenty of which were to be seen. . . ." Under date of 25th Dec., 1886: "Drove to Troubridge Hill, stopping on the way at the beach near Goldsmith's, where we found *Euphema aurantia* very plentiful." Out of the eight records in this State where the locality is supplied, all but the one without data have been purely coastal. The specimens taken at Robe last November, as well as those taken by myself at The Grange in the same month (1886), were replete with fat, which had to be mopped up in the form of oil during skinning. This indicated, of course, that the birds then had an abundant food supply.

THE BLUE-WINGED PARROT.

The Blue-winged Parrot (*Neophema chrysostoma*) is much more frequently noted in South Australia than is the preceding species, but as compared with *N. elegans* it is distinctly rare. In Tasmania, at Sandford (then called Muddy Plains) in March, 1886, I collected a specimen. Flocks were frequently seen then, but now it is hardly ever noted in that neighbourhood. On November 5, 1924, I saw a few in the upper Liffey

(Tas.) and collected an example, and the same day saw a flock that may have been this species at the northern end of Epping Forest (Tas.). From personal observation and information supplied, I believe the species to be resident in that district. As before remarked, several specimens have been sent to me at various times, mostly from northern Tasmania, and all have been this species.

The following are South Australian records: North refers to two skins in the Australian Museum, one labelled "Adelaide, 1862," and the other "Murray River, 1867." Salvadori refers to three immature skins in the British Museum presented by Captain Sturt from South Australia. In the South Australian Museum there are five skins, one a female, from Tailem Bend (October, 1887); a male from near Adelaide (exact locality not given), 1899; a pair from Robe (September 14, 1923); and a male from Myall Creek, near Port Augusta (September 29, 1925). In Parsons's collection there is one immature bird, collected by Parsons at Gilles Plains (north of Adelaide), June 28, 1917, and a male from Outer Harbour, May 26, 1920.

Concerning a specimen shot by myself in the mallee, a few miles from Woodchester (September 19, 1919), the following is extracted from my field notes: "We decided to make our night camp further back, where the mallee had not been burnt out, and on our way there disturbed several *Neophema.* The motor was pulled up as quickly as possible, and my companions soon got on the track of a flock, which turned out to be *N. elegans.* Specimens were obtained, several of them showing the orange abdominal blotch. On getting through the fence a little to the right of where the others had gone, I flushed another Parrot, which settled in a low bush; I shot it with a small charge, and was delighted to find that it was a fine male *N. chrysostoma,* a bird I had been seeking for years. On the firing of the shot a flock of about eight birds rose, but as I kept my eyes on the bird I had shot, I did not see the direction the flock took. Concluding that Messrs. Parsons and McGilp were getting the same species, I was much surprised to find that the flock they had been after were all *N. elegans.* We came back the next morning, but were only able to flush *N. elegans.* I have no doubt that there were two distinct flocks, one of each species. This surmise is borne out by the fact that the *N. chrysostoma* was very fat, whereas all the *N. elegans* obtained were only in fair condition."

It should be noted that the "Short Key" supplied only refers to full-plumaged males. For example, I have a skin from Launceston, Tasmania, skinned by myself, sent me by Mr. H. C. Thompson in May, 1926, in which the frontal blue band is absent and the lores are not yellow but only yellowish-green; nevertheless, it certainly is *N. chrysostoma.* My thanks are specially due to Mr. J. Sutton for extracts from Macdougall's diary and other notes.

A SHORT KEY TO MEMBERS OF GENUS NEOPHEMA (ADULT MALES).

	Chrysogaster.	*Chrysostoma.*	*Elegans.*	*Petrophila.*	*Splendida.*	*Pulchella.*
LORES	Javel-green	yellow	yellow	pale blue	blue	blue
FRONTAL BAND ..	band broad Rood's-blue shading to green above and below, changing to green at eye; in some a few blue feathers at posterior corner of eye	band narrow lower part very dark Prussian-blue, edged on upper with pale Rood's-blue; one line of green feathers below	band narrow as in *chrysostoma*, except the upper edge of band is paler and more marked and lower green line is absent, in some blue behind eye	band narrow blue of lores passes right round eye	band broad blue of lores carried right round eye	very broad frontal band extending to crown and blue of lores carried right round eye
CHEEKS	Javel-green	Biscay-green	yellow near beak shading into Yellowish-oil-green	similar to back	blue	blue
EAR-COVERTS ..	same as cheeks	same as cheeks	slightly darker than adjoining portion of cheeks	same as back	blue	green
BACK AND GENERAL UPPER PLUMAGE	rich green = Forest-green but brighter tone	grey-green = Lincoln-green	yellowish grey-green = Yellowish-oil-green	grey-green = Lincoln green Pl. XLI	paler than *chrysogaster*	similar to but slightly duller than *chrysogaster*
CHEST	Forest-green	grey-green	grey-green	dull green	scarlet	yellowish-green
ABDOMINAL SPOT..	red-orange	light orange	light orange	rich yellow	yellow	light yellow

NOTE.—The most marked difference and the only one observable in flight is the rich green of *chrysogaster* and grey-green of its congeners. All colours with first letter a capital are "colour standard" names, "Ridgway."

Data of Examples Figured.

Neophema chrysogaster (305).—Total length 220 mm.; wing 105 mm.; culmen 14 mm.; tarsus 18 mm.; tail 105 mm.; iris brown; feet dark greyish-brown, tarsus paler grey; bill dark grey-brown (horn); inside of mouth whitish; male, shot by J. Sutton at Robe, South Australia, November 6, 1926, out of flock of 25; skinned and data supplied by Edwin Ashby.

Neophema chrysostoma (306).—Wing 105 mm.; culmen 15 mm.; tarsus 16 mm.; tail 117 mm.; iris walnut-black; feet and tarsus greyish brown; male shot by E. Ashby, September 10, 1919.

Field Notes on the Blue-winged Parrot.

By W. W. Giblin, M.D., R.A.O.U.,

and

A. W. Swindells, R.A.O.U.,
Hobart, Tasmania.

In the July number of *The Emu* of 1924 (Vol. XXIV, Part 1) a series of articles appears on some of the rarer Parrots of Australia, and in one of these articles Mr. A. H. Chisholm, C.F.A.O.U., writes: "Let it be re-emphasised, however, that field study of the 'Ground' and 'Grass' Parrots in particular is earnestly to be desired, if only to strengthen our historical records in future years." This remark has encouraged the writers to feel that some notes on the nesting habits of the Blue-winged Parrot (*Neophema chrysostoma*) may be acceptable to readers of *The Emu.*

About the time that these articles were appearing a number of Grass-Parrots were being trapped in the northern parts of Tasmania and sold to the Zoological Gardens of the mainland and Hobart. The plumage of the birds sent to the Hobart Zoo varied considerably; some exhibited marked patches of orange-yellow on the abdomen, whilst in others this colour was of paler hue and may best be described as pale yellow with a greenish flush. It was thought that the more distinctively marked birds were Orange-breasted Parrots (*N. chrysogaster*), and to settle this point a specimen which died was forwarded by the Curator (Mr. A. R. Reid), to Mr. E. Ashby, who reported it to be a Blue-winged Parrot.

We decided to make every effort to discover the favoured localities of these birds, and, if possible, observe their habits during the nesting period. As a result of inquiries, we learned that they had been seen in widely-separated areas throughout the Island. Reports of their presence came from the north-east, north-west and east coasts, the midlands, the south-east coast, and certain localities in the south, including the Bothwell district, where, in the years 1898-1899, we knew them to be breeding in fair numbers in company with the Orange-breasted species. We were particularly interested to hear of their return to this latter part, more especially as since the years mentioned the birds had, with the exception of a few odd pairs, ceased to visit the locality, although the surrounding open country with its fine grassy flats and undulating knolls offered a delightful retreat, whilst its old, low timber afforded abundance of nesting sites. However, trips to this and other districts which knew them in those far-off days proved fruitless, and we were obliged to go much further afield before our quest was rewarded.

The first discovery we made was in the Epping Forest, where a small group of Parrots was found preparing nests on November 19, 1924. A week later another colony similarly employed was found in the midlands, and on December 6 and 7 these nests were observed to contain complete clutches of eggs.

In 1925 these two groups of birds were more closely watched, this being done by camping in close proximity to their nesting sites. We were pleased to note that the number of birds had increased appreciably and several new flocks were located. Full clutches of eggs were noted on December 6, and a nest containing three fresh eggs was found on December 25. This nest was owned by a pair of birds which had not bred earlier in the season, and was situated some 40 feet from the ground in the hollow of a partly-living, upright branch of a peppermint-gum. A few feet below, in a small hole in the bole of the tree, another nest of the same species, discovered with two fresh eggs late in November, was observed to contain five downy chicks about a week old.

A visit to one of the north-western areas in which numbers of the birds had been trapped showed that the district did not possess suitable nesting-trees, and, as the birds were not noted, it was concluded the locality was used as a feeding-ground only before and after nesting operations. Late in December, when passing through the Bothwell district on our way home from the Lakes region, we were delighted to discover a group of some 12 pairs of birds, but were unable, owing to the limited time at our disposal, to follow them up.

In 1926 the Blue-winged Parrot nested earlier and in greatly increased numbers. Several new groups were located in parts where they had not been observed in previous years. Nests with complete clutches of eggs were inspected over the period of November 17 to December 5, inclusive.

Comparing the notes of the three seasons under review, we are satisfied that there has been a progressive increase in the number of the birds, which, as far as we can judge, have at least doubled their numbers in that period.

It is quite impossible to form an adequate idea of this bird from seeing specimens in cages or aviaries, where the species lives in a continuous state of nervousness, due to the activities of uncongenial companions. In its natural state it is attractive when first seen, and closer acquaintance serves to increase one's admiration of its beauties in form and movement and one's affection for its amiable characteristics. Gould writes of it in glowing terms, describing it as one of the most beautiful and interesting of the *Psittacidæ.* He refers to the grace and elegance of all its actions and compares its flight to that of the Snipe. Campbell is equally enthusiastic regarding *Neophema* Parrots when he says: "We are now dealing with a delightful genus, the species of which for grace, elegance and delicate colouring may be considered the most beautiful of little Parrots."

Blue-wings are sociable little birds, feeding together in pairs or parties of six, eight or even 20. One is struck with the total absence of quarrelling so common among members of the Parrot family. They appear to live a happy life, and by reason of their quiet and unassuming behaviour escape persecution from other birds. Easily frightened by any sharp sound or sudden movement, they are equally confiding if you are still, and will continue their feeding within a few feet of their observers. It is then noticed how inconspicuous they are on the ground, where their plumage blends with the grasses on which they are feeding. They are indistinguishable also when sitting quietly on the dead branch of a tree, which accounts for one often overlooking their presence when passing quietly through the countryside.

The distinctive note of alarm, if one is familiar with it, attracts attention. This is a short, high, double note, generally repeated several times. The pitch is similar to that of the Yellow-tailed Thornbill. This note is used in flight and can be heard at a considerable distance, thus enabling the birds to keep in touch with other groups that may be feeding in the neighbourhood. Their only other note is soft and low, and resembles the twittering of the Tree-Martin. It is generally heard when mates are calling or when the male calls the female from the nest to feed.

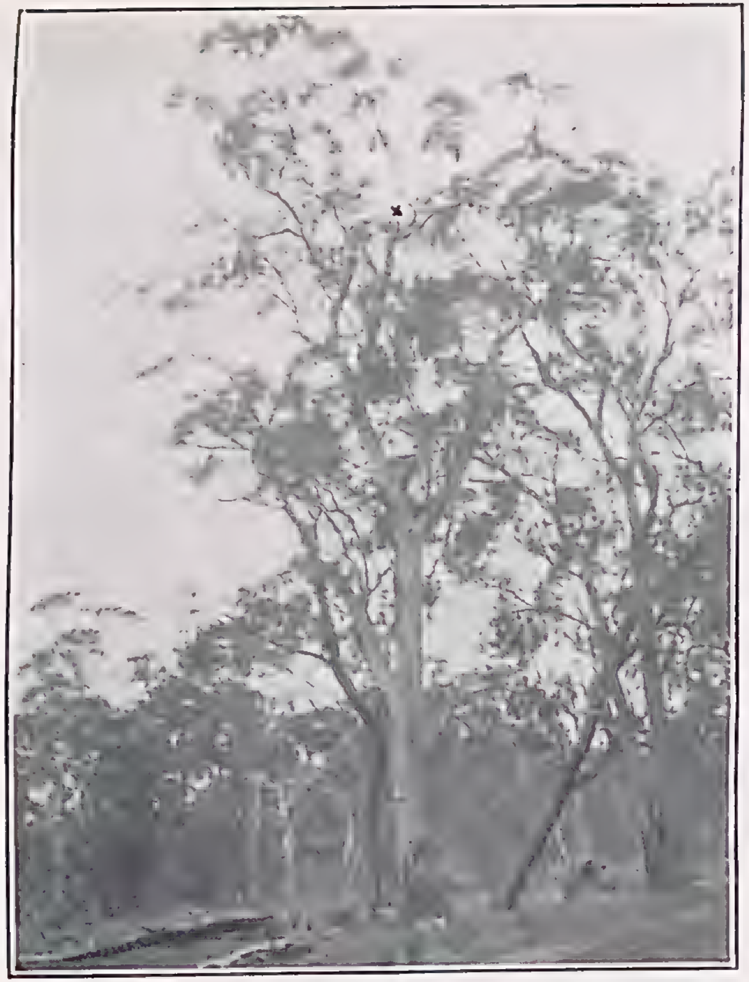
Food is searched for only on the ground, and the seeds of native grasses appear to be the main article of diet. The grasses they appear to be particularly fond of, and which grow on all their favourite feeding-grounds, are: Wallaby grass (*Danthonia semibarbata*), wallaby grass (*D. semi-annularis*), silver grass (*Aira caryophyllea*), and hairy sundew (*Drosera peltata*). The birds are fond of feeding near grain fields, and may frequently be flushed around the edge of a crop of oats, where they appear to find many seeding weeds; but in no instance have we ever observed them feeding on the oats.

In its flight the Blue-winged Parrot is remarkable alike for its grace and power, excelling all other members of its genus in Tasmania, with the sole exception of the Swift Parrot (*Lathamus discolor*). One needs but to watch them in windy weather to be filled with admiration for the mastery of their art which they exhibit.

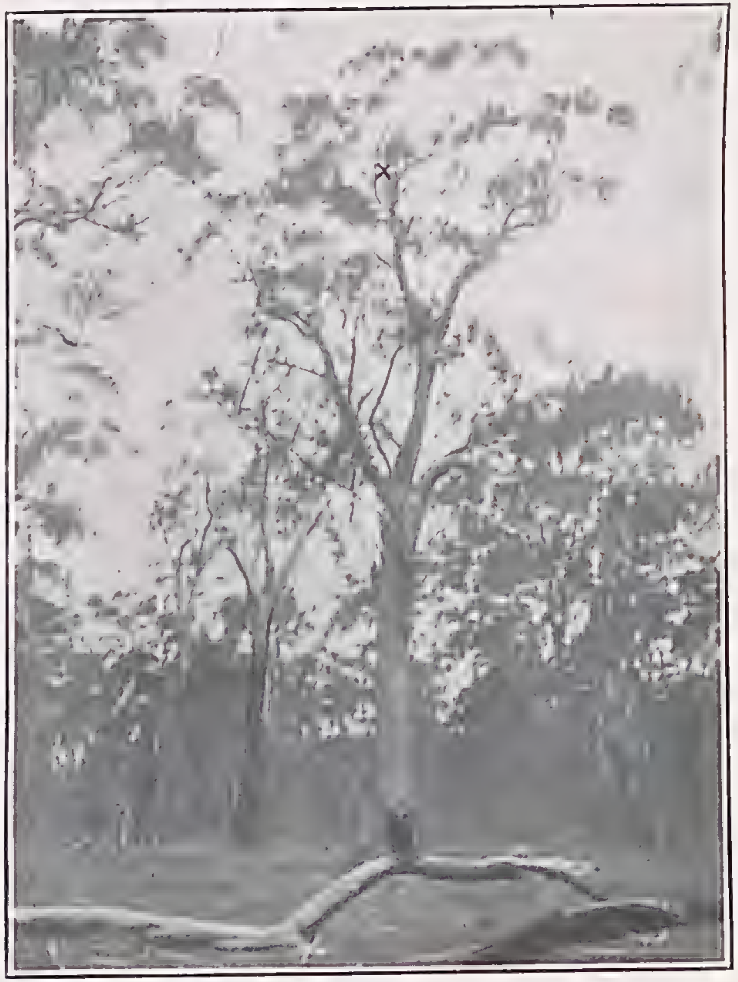
The country preferred for nesting is open forest with rocky knolls, on which the seeds of the native grasses ripen early in the shallow soil between the out-cropping rocks. The trees selected, either living or dead, are those carrying hollow spouts or decaying branches. Swamp gum, white gum and peppermint are equally favoured. Frequent visits to water are, of course, essential to a bird living on dry seeds, but it by no means follows that for this reason the nesting sites will be found in close proximity to creeks or water-holes. It frequently happens that in the vicinity of the watering-places there is no timber suitable to the birds and the nesting-ground may be a mile or more away. This, however, offers no serious inconvenience to the birds, for with their powerful flight distance is rapidly covered. We observed them flying to water in the very early morning and returning to the feeding-ground near the nests, after which the female birds would carry on nesting duties whilst the males were busily employed in feeding and making trips to water until about midday; then they would retire to warm banks or shady slopes according to the temperature. Late in the afternoon they would again be active and attending to the needs of their mates.

It is usual for the nests of each separate party to be grouped together. In some instances we found Green Rosellas (*Platycercus caledonicus*) and Swift Parrots breeding with a colony, and sometimes in the same tree. On one occasion only was a Musk Lorrikeet (*Glossopsitta concinna*) in the selected area. This species and the Red Rosella (*Platycercus eximius*) were nesting freely about a mile away from the Blue-wings' grounds. No nesting hole comes amiss to the Blue-winged Parrot, provided the dead wood is soft enough to permit of their feeble beaks pecking it away and forming a suitable cavity, and that the entrance is small enough to exclude such enemies as the Shrike-Thrush (*Collurcincla harmonica*).

The usual height of the nest is about 30 feet, but we have found them as low as 18 feet and as high as 80 feet. A broken dead spout with outer casing of hard wood and decaying centre, which can be pecked out as far as the living branch, is often chosen. Another favourite site is a broken-off upright branch with entrance from the top or knot-hole in the side. Or, again, a knot-hole in the upper side of a horizontal branch, and concealed from observation below, will be selected. Occasionally, a hole in the main bole of the tree will be chosen. On one occasion a large hole some 18 feet up and showing



NESTING-SITE (MARKED ×) OF BLUE-WINGED PARROT (THE TREE CONTAINED ALSO NESTS OF THE SWIFT PARROT AND SPOTTED OWL.)



NESTING-SITE (MARKED ×) OF BLUE-WINGED PARROT.

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signs of use was noticed in the trunk of a peppermint-gum. One of the party picked up a long stick and scratched the side of the hole, remarking, "Watch me rouse an Owl." Much to our astonishment, out flew a Blue-winged Parrot. A lengthy cut-out revealed a beautiful clutch of six fresh eggs, which were deposited on the rotten wood of a roomy chamber at the end of a narrow channel.

In Gould's description of this bird he remarks: "Their eggs, as I have been informed, are usually deposited in the holes of *Eucalyptus* trees, but occasionally in the hollow trunks of fallen trees." In Campbell's *Nests and Eggs of Australian Birds,* the nest of this species is stated to be "within a small hole in a tree, or in a hollow log or stump." Littler, in *Birds of Tasmania,* and North, in *Nests and Eggs of Birds Found Breeding in Australia and Tasmania,* also refer to the bird as using hollow logs for nesting sites. We have during the past three seasons examined over fifty occupied nests of this species, and seen the birds when house-hunting inspect and reject as many more holes, and on no occasion did we see fallen timber used or even considered for nesting purposes; nor have our experiences in former years ever resulted in the discovery of a nest in such a situation. Had the birds ever used fallen timber for nesting purposes in Tasmania, the instinct would remain, and when selecting nests such sites would be duly inspected. It would be interesting to know if anyone has personal knowledge on this point, or whether the statement has been handed down by tradition only.

A suitable hollow, especially if young have been successfully reared, is used again the following year, but if this is done the hole is completely cleaned out and deepened and a new bed formed with the picked-off portions of rotten wood. On one occasion we found that the former home of a Blue-winged Parrot was taken over by a Swift Parrot—the only instance we can quote of another species usurping the rightful owner's rights. As the wood which the birds are able to work on must be soft and rotten, it is often found that the dead branch or even the dead tree used as a home the former year has been blown down by the winter gales.

In choosing the nesting site the female is accompanied by her mate, but the selecting is done by her, and after settling on a likely hole she at once commences work. The following field note is descriptive of her actions: "23rd Nov., 1925, 10 a.m. Four birds observed in peppermint. One actively engaged examining a large dead bough. Seen to enter hole and remain in it for several minutes, during which time one of the other birds took a keen interest in the proceedings. The remaining pair sat placidly side by side. A little later they flew away and did not return. The branch selected by the Parrot was about six or seven inches in diameter and some 25 feet from the ground. A small hole on the upper surface could only be seen from below with difficulty.

"The female worked in the hole for the next hour, coming out at intervals of from five to ten minutes and then only on return of the male, who kept flying off out of sight, whether to feed or not we could not tell. Each time he returned to the branch the female would come out of the hole for a few seconds only and then hurry back to her work. At the end of the hour a sound like a rat gnawing could be heard for a few minutes. Evidently she had come to the end of the rotten portion of the branch and found the wood too hard for her purpose. On the next visit of the male the pair flew to a nearby tree and the male proceeded to feed the female. This was done by eructating food into his mouth by three or four bobbing movements of the head, the mouthful being taken readily by the mate. The process occurred eleven times.

"At the end of the feeding no attempt was made by either to return to the hole, but they flew off to a neighbouring tree and began searching for another suitable nesting site. In the choice they were evidently not particular as to height, for every dead limb was examined for holes, whether it was 20 or 70 feet in height. All the timber in the neighbourhood was large. After following the pair from tree to tree till we had counted a dozen examined, they took a much longer flight than usual and we failed to locate them again."

The whole of the work of cleaning out and forming the nesting cavity is undertaken by the female bird; no assistance is rendered by the male, nor does he help in the process of incubation. His duty is to keep his mate regularly supplied with food, and in this he is most attentive. The female keeps a vigilant watch over the chosen nesting-hole, only leaving it for brief periods for exercise and water. This guardianship is essential, as competition amongst the birds for breeding holes in the favoured areas is very keen, for each year sees a large proportion appropriated by the pernicious Starling (*Sturnus vulgaris*).

The depth of the nesting-hollow is usually from a foot to 18 inches, although occasionally when the wood is very old and rotten the bird will excavate much deeper. The walls of the cavity are freed of all loose material, the finer particles of which are allowed to settle at the bottom to form a bed on which to deposit the eggs. Intermingled with the dust and finely bitten-off fragments of wood is always to be found a certain number of loose feathers from the bird's plumage. So small are the hollows used by the birds that the five or six eggs of the clutch appear to fill the cavity, and it is necessary to cut away the wood and completely expose them to view before they can be handled. During the period of preparation of the nest, the bird will often flush on the tree being struck smartly with a tomahawk, and may even show her head at the entrance hole if she hears any unwonted noise in the neighbourhood. But once she begins incubation (which commences with the laying of the first egg), it becomes increasingly difficult to induce her to leave her eggs, even though the dead bough in which she is lodged may be struck several times with a billet of wood. We found that individual birds differ much in this respect; a few flush readily, the majority only leave the eggs when the climber is close to the nest, and others, refusing to move even when the nest is being cut out, allow themselves to be lifted off the nest. When held in the hand on these occasions no attempt is made to peck, the birds evidently realizing that their feeble beaks are useless as weapons of defence.

On one occasion we examined a small white gum containing several likely holes, as a bird had been observed to fly to it ten days earlier. All attempts to dislodge a bird by hammering the base of the tree and striking the branches with missiles were without result, and we were walking away when a bird was seen to fly into the tree. After watching a few minutes it was heard to give a low call, and was immediately joined by the female, which came from a dead horizontal branch which had been repeatedly struck. This nest contained four eggs, rather heavily incubated.

On account of their unwillingness to flush we have found the only sure way of discovering nests is to watch the movements of the birds. From 6 a.m. to midday the male bird pays several visits to the sitting mate, and we have always found this time of day much more profitable than the afternoon, when the male birds are either resting or engrossed in their own feeding.

When approaching the nest for the purpose of feeding the female, the male bird does not usually fly directly to it but alights in a tree a little distance away. After waiting a few minutes, he flies to a nearer tree, makes a shorter pause, and then flies to the tree containing the nest. He calls the female out and both fly away a short distance and perch together on a dead branch. He then proceeds to feed her, eructating the contents of his crop, which is readily taken from beak to beak. Having given all he has brought or intends to supply, he sidles along the branch, followed by the female, who, like Oliver Twist, is asking for more. Another advance on her part and retreat on his make her fully realize that the meal is over and it is useless to persist. A period of a few minutes' rest follows, and then both are off to a neighbouring creek or for a few turns of rapid flight.

The number of eggs to the clutch is from four to six. Only one instance of a greater number has come under our notice—a set of seven observed during the season of 1926. In that year an equal number of five and six clutches was examined. On two occasions four eggs comprised the sitting, but as the eggs of one of these clutches were perfectly fresh the bird may not have completed her complement. In the years 1924-1925 there were fewer eggs to the clutch. We noticed one set of three heavily-incubated eggs and one only of six eggs. The remainder were clutches of four and five in the proportion of four to three. Of the nests with young examined in these two years, the brood was four or five.

The size and shape of the eggs is subject to considerable variation. Comparing a series of clutches, we found they could roughly be divided into three types: (1) Large type, rounded ovals, measurement 2·3 centimetres × 1·9 centimetres; (2) smaller type, rounded ovals, measurement 2·1 centimetres × 1·6 centimetres; (3) lengthened ovals with pointed ends, measurement 2·3 centimetres × 1·7 centimetres. No. 1 type was found to be in the proportion of half of the clutches examined, No. 2 type in one-quarter, No. 3 in one-sixth, whilst the remaining clutches were midway between Numbers 1 and 2 types in size. No. 3 type is quite unlike any Parrots' eggs we have seen.

A tragedy of bird-life was one day revealed on examination of a hole which a Blue-winged Parrot had been observed inspecting. Nothing could be seen in the hollow until the entrance was enlarged; then a dead Blue-wing was brought to light. Farther down two bright eyes were visible, and after further cutting away of the wood a living Owlet-Nightjar (*Aegotheles cristata*) was lifted out. Lying on the dead leaves and rotten wood of the floor of the cavity was another dead Blue-wing, but no sign of eggs or shells was in the nest. As the entrance-hole was only just large enough to admit these birds, and the skins of the Parrots were practically intact, the explanation of the place being an Owl's feeding quarters could not be considered. The Nightjar, with its weak weapons of attack, could also be acquitted of having brought about the birds' untimely end. What, then, was the secret of the tragedy? It is possible that one of the birds had commenced to prepare the hollow for the reception of her eggs when a second, contesting her rights, had come along and attempted to turn her out. In the ensuing fight indomitable pertinacity made up for lack of offensive weapons—in the struggle for possession each had remained tenaciously in the hollow until death from exhaustion ensued. The Owlet-Nightjar became the next tenant and, being accustomed to musty-smelling resting holes, found no inconvenience from the mummifying remains. Whether the Parrot we saw examining the hole was a prospective new occupant or a faithful mate is a matter of conjecture.

A keen look-out has been kept for the Orange-breasted Parrot in all our outings, and on one or two occasions we thought we had located it, but closer observation showed that we were meeting again with our old friend the Blue-wing. These uncertainties arose through variation in the plumage of different birds and because we were unable to get really close views to enable us to settle the question of identification. Once it seemed certain that we were dealing with a different species, as a pair of birds under observation showed much more distinctive patches of orange-yellow on the under-parts, and the plumage altogether appeared to be of a deeper shade of green. The eggs, too, were slightly larger and more rounded than any previously examined. We therefore deemed it advisable to secure both birds, but an examination of the skins proved them to be Blue-winged Parrots.

We regret that these notes contain no observations on the later stages of nesting and habits of the young birds, and that we have no data regarding migration. The fact that their nesting haunts are from 60 to 90 miles from our homes has prevented this. Recently, however, we have learned of a small group of the birds which last season came to an area within a few miles of Hobart, so this year we may be able to study them further and add to these notes.

It certainly appears that the conditions existing in Tasmania at present are favourable to an increase in their numbers, and they are now extending to localities where they have not been seen for very many years. We have made an estimate of the number of birds actually seen in our bush outings during the past season, and the total is well over 200. They have few natural enemies and seem quite capable of holding their own against these. A much greater danger to them is the bird-trapper, as the birds' confiding nature renders them an easy victim to his nets. Their life is short in captivity, as few aviaries are large enough to afford them the exercise they require or provide the advantage of the growing grasses necessary to their existence.

Further Notes on Rare Parrots.

By FLORENCE M. IRBY, R.A.O.U., Casino, N.S.W.

READING Mr. A. H. Chisholm's interesting notes upon the Scarlet-chested Parrot (*Neophema splendida*) in *The Emu* for April, 1927, his remark upon general lack of knowledge of this bird has led me to venture a few quotations from my manuscript on Australian birds.

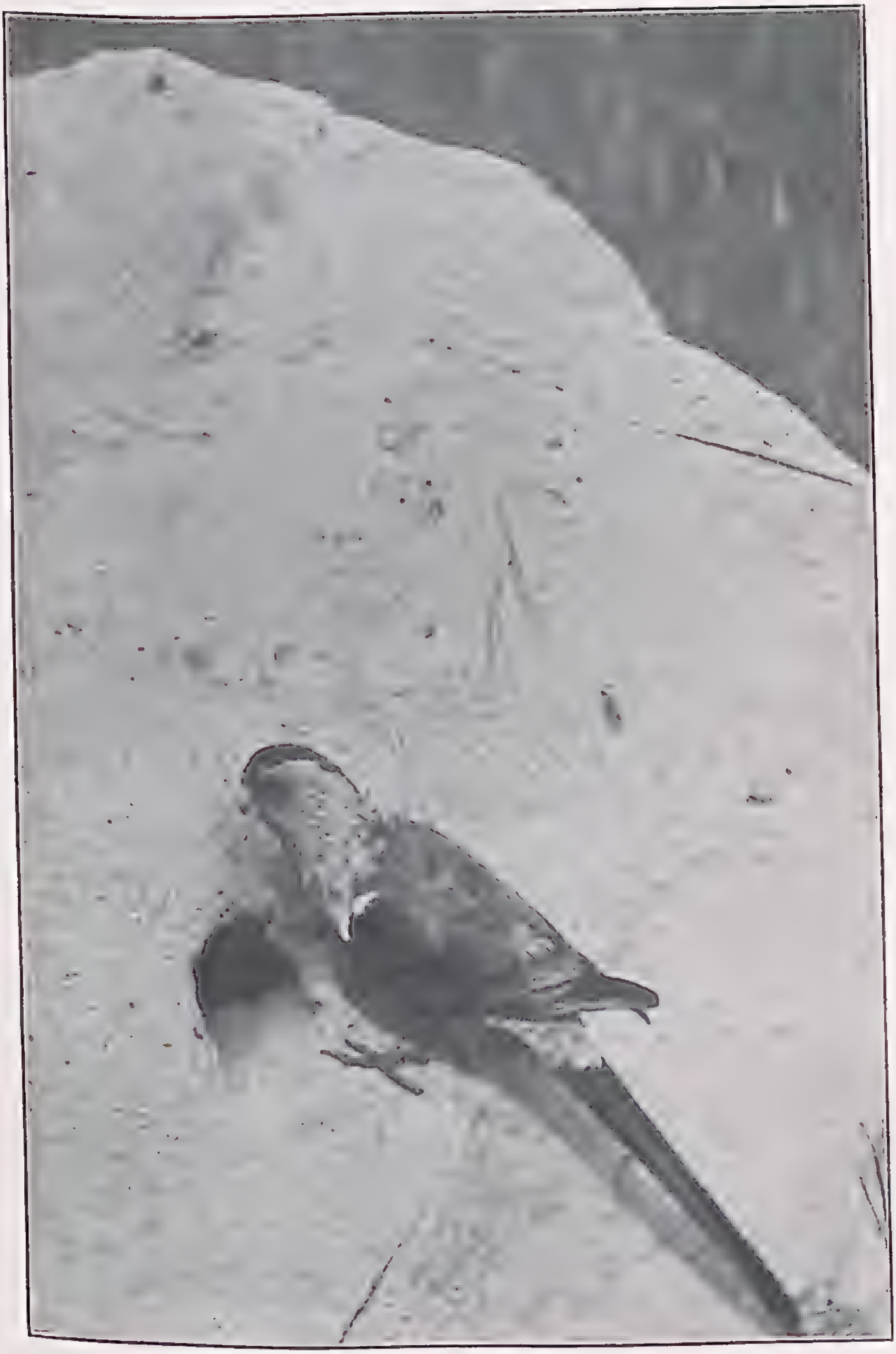
This brilliant little Grass-Parrot is possibly not quite so rare as many bird-lovers imagine it to be. The fact that it is most often found in thickly-timbered country, combined with the noiseless ways of the bird, makes it most difficult of observation. The low-toned musical chatter is very similar to that of the lovely Blue-winged Parrot (*N. chrysostoma*), but the voice possesses no carrying quality, so can only be heard at very close quarters. Like others of the *Neophema* genus, it is extremely local in habit, apparently clinging persistently to one locality until forced from it by drought, bush fires or other unfavourable climatic conditions which may have caused a serious falling-off in the food supply.

During two visits of several months' duration to Gilgandra (central western N.S.W.) during the winter and spring of 1915, and also the winter and spring of 1917, I was enabled to see flocks of these tiny, gay-hued Grass-Parrots, chiefly feeding about the flats of the Castlereagh River, under the big Murray gums. They were friendly, unsuspicious little creatures, and not readily frightened. One of my friends had a pair tamed; they were gentle and affectionate, but they ultimately fell victims to a cat.

Mr. A. Tibbits, Gilgandra, told me that these beautiful Grass-Parrots were always to be seen about there; small flocks were sometimes to be found in the newly-sown wheat fields about the Castlereagh. He said that they were singularly tame and confiding, coming quite close about houses—for this reason he never shot them. A flock used to live about his parents' home a short distance out of town. They were slovenly little birds in their habits, their plumage often looking dusty and uncared for; he doubted if they ever bathed, although always haunting the edge of the water trough near the house. They built in hollows and spouts of the trees there, laying three white eggs.

The Scarlet-chested Parrot is, or has been, fairly widely distributed in New South Wales, being native equally to the east as to the west. It is an inhabitant of the north-eastern slopes of the Great Dividing Range, Tenterfield and Boonoo Boonoo districts, New England. The one occasion upon which I remember noticing them there was in July, 1926. Then, as I walked along the side of a mountain creek, a flock of these Parrots alighted on the ground on the opposite bank, where tall-growing grasses and frost-tipped bracken cropped up amongst the granite rocks. The Parrots feasted quietly on the grass-seeds, with occasional low-toned chatter. Mr. A. Stockdale, of that district, said he had always known them there, and frequently saw flocks of them about; but, possibly owing to the rugged nature of the country, during various visits to the locality over a period of many years, I only succeeded in meeting with this one small flock.

A keen bird-observer who has been residing in Lismore (Richmond River) for the past two years, informed me recently that the Scarlet-chested Parrot is to be seen about there occasionally. He had noted them chiefly about the big cutting on the Ballina Road.



PARADISE PARROT (♂) ON THE ALERT AT NESTING-HOLLOW IN TERMITES' MOUND.

Photo. by C. H. H. Jerrard.

NESTING OF PARADISE PARROTS.

Further to my notes on the Paradise Parrot (*Psephotus pulcherrimus*) in *The Emu* of April, 1927 (p. 236):

From a very old resident of the Upper Richmond, I learnt that a good many years ago a few of these birds were to be found in a locality up towards the border of Queensland. My friend said that the blacks occasionally pointed out the nests when they were out after stock and would sometimes knock in the side of the "anthills" to show the eggs. The birds also built at the end of tunnels dug into the banks of creeks.

Writing to me recently upon the subject of Queensland birds of some thirty years ago, my uncle, Mr. C. Irby, said: "I knew the Ground-Parrot very well, it used to be seen in fairly large flocks about Roma, also on the head of the Dawson River; in the latter district I have found their nests in the river banks, very much the same as a Kingfisher's. We used to call them 'Soldier-Parrots' up there."

Speaking to me recently of Paradise Parrots, Mr. B. Robertson, a native of the Inverell district (N.S.W.), said he knew the "Ground-Parrots" well. They were to be found on the Severn River and Fraser's Creek (branches of the Macintyre). They used to tunnel into the creek and river banks; Bee-eaters nested there also. The Parrots usually laid three eggs, but occasionally four or five. They were still in that district when he left it in 1910.

Writing to me from the Inverell district (N.S.W.), Mrs. G. Woods, in a letter dated April 20, 1927, said: "The Ground-Parrot is very scarce about here now, but there are a few. They build their nests in the banks of the creeks, but I have never seen their nests in trees. My husband says he has heard of them building in trees but has not seen them."

[Miss Irby, although a new member of the R.A.O.U., has been a keen student of birds for many years, and one who has enjoyed exceptional opportunities for observation. Her striking records therefore are reliable. A fortunate chance meeting with the Paradise Parrot a few months ago—a small party, driven in by bush fires, alighted in the homestead yard—cause her to be, probably, the only person who has seen both this bird and the beautiful Scarlet-chested Parrot in a state of nature.

In the course of a letter recently, Miss Irby inquired if I had found in Queensland that Paradise Parrots were restricted to nesting in termites' mounds, and I replied that some northern settlers had reported the species as nesting in hollows of trees many years ago. This was news to the inquirer, what she had in mind being reports that the beautiful birds nested in holes in the banks of rivers and creeks. In all the course of five years of inquiry regârding the Paradise Parrot in Queensland I had met no instance of the kind; nor is there any published reference to it. However, as some Kingfishers favour alike termites' mounds and the banks of streams for nesting-hollows, I see no reason why the Paradise Parrots should not do likewise. Cases in affinity are those of the Rock-Parrot (*Neophema petrophila*), which nests in rock cavities on the coast of South and West Australia, and the Kakapo (*Stringops habroptilus*), of New Zealand.

"Ground-Parrot," as cited above, was the name most freely applied by country dwellers to the *Psephotus pulcherrimus* years ago. Other terms were Ant-hill Parrot, Beautiful Parrot, Scarlet-shouldered Parrot, Elegant Parrot, and Ground-Rosella. I took the title "Paradise Parrot," as used by dealers long ago, from an old book on aviculture; but I had never before heard the term "Soldier-Parrot." The very few people who have seen the brilliant bird will agree that this is an apt title—not so much because of the colour-scheme as because of the erect bearing and generally "martial" demeanour of this very definite aristocrat among Australian birds.—A. H. CHISHOLM.]

Southern Outposts.

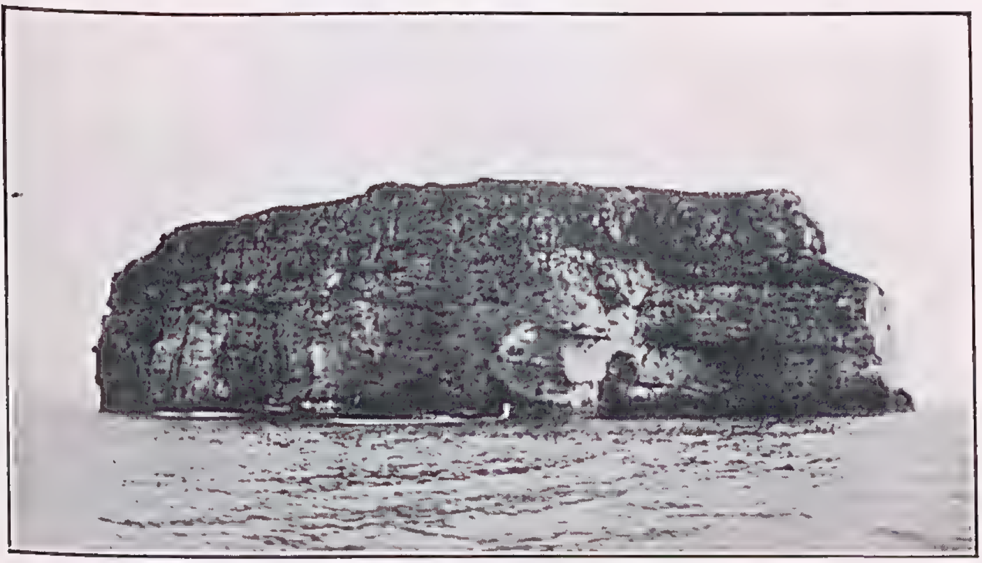
By CLIVE LORD, F.L.S., R.A.O.U., Director of the Tasmanian Museum.

OFF the South Coast of Tasmania there are several islands and isolated rocks which are of interest to ornithologists. These have yet to be explored in detail, for we know little of them and the stormy seas in which they are situated make it a difficult matter to carry out investigations. Any excursion arranged with the specific object of landing upon such an isolated rocky inlet as The Mewstone, might have to wait for many days in Recherche Bay before a favourable opportunity presented itself. Even then only on exceptional days could a landing be attempted.

My personal experiences of such attempts, which have been made in my own yacht, *Telopea,* and in coastal craft of several types, have left memories of many days in Recherche Bay and of the westerly winds which sweep along this rugged section of our coast. Landing on the closer islands, such as the De Witt and Maetsuicker groups, is not such a difficult matter, but the interest is not so great. For on The Mewstone, we know, Albatrosses breed, and Pedra Branca is the home of Gannets.

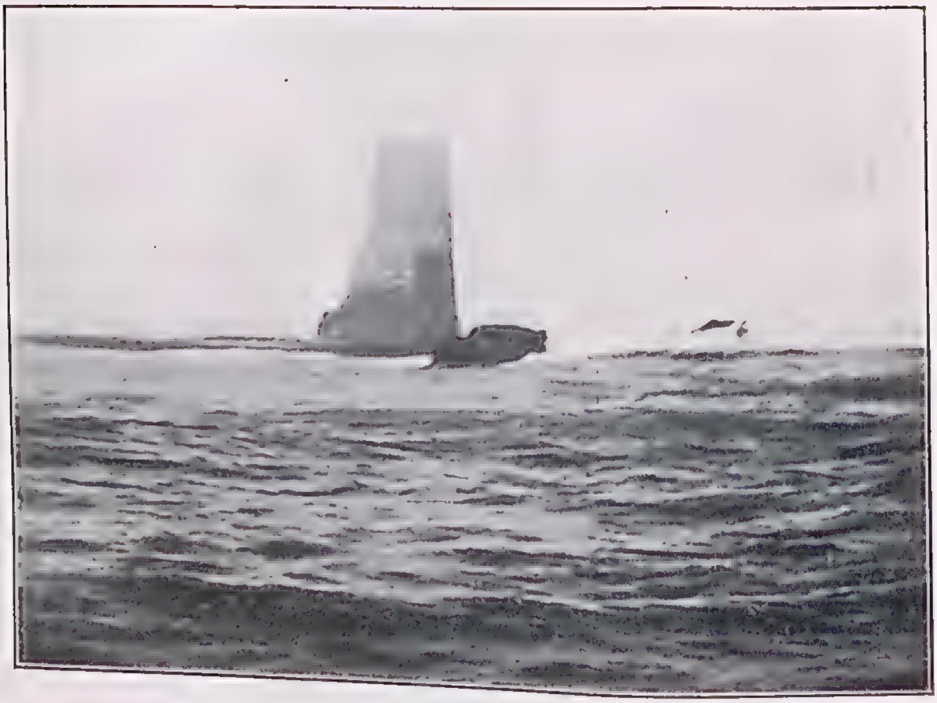
An outline map herewith gives an idea of the position of the islands, and it may be as well to describe briefly each item or group. In passing, it is well to recollect that the information available is but scanty—even the outline of our southern coast has yet to be surveyed in detail.

Pedra Branca, Eddystone, and Sidmouth Rock (see outline map), are three rocky outcrops, connected by a rocky reef lying in an E.N.E. and W.S.W. direction. They are about a mile and a half apart. The Sidmouth Rock is situated about five miles to the E.N.E. This last outcrop is about one hundred



EAST SISTER (OR SEAL ROCK).

Photo. by M. R. Freney.

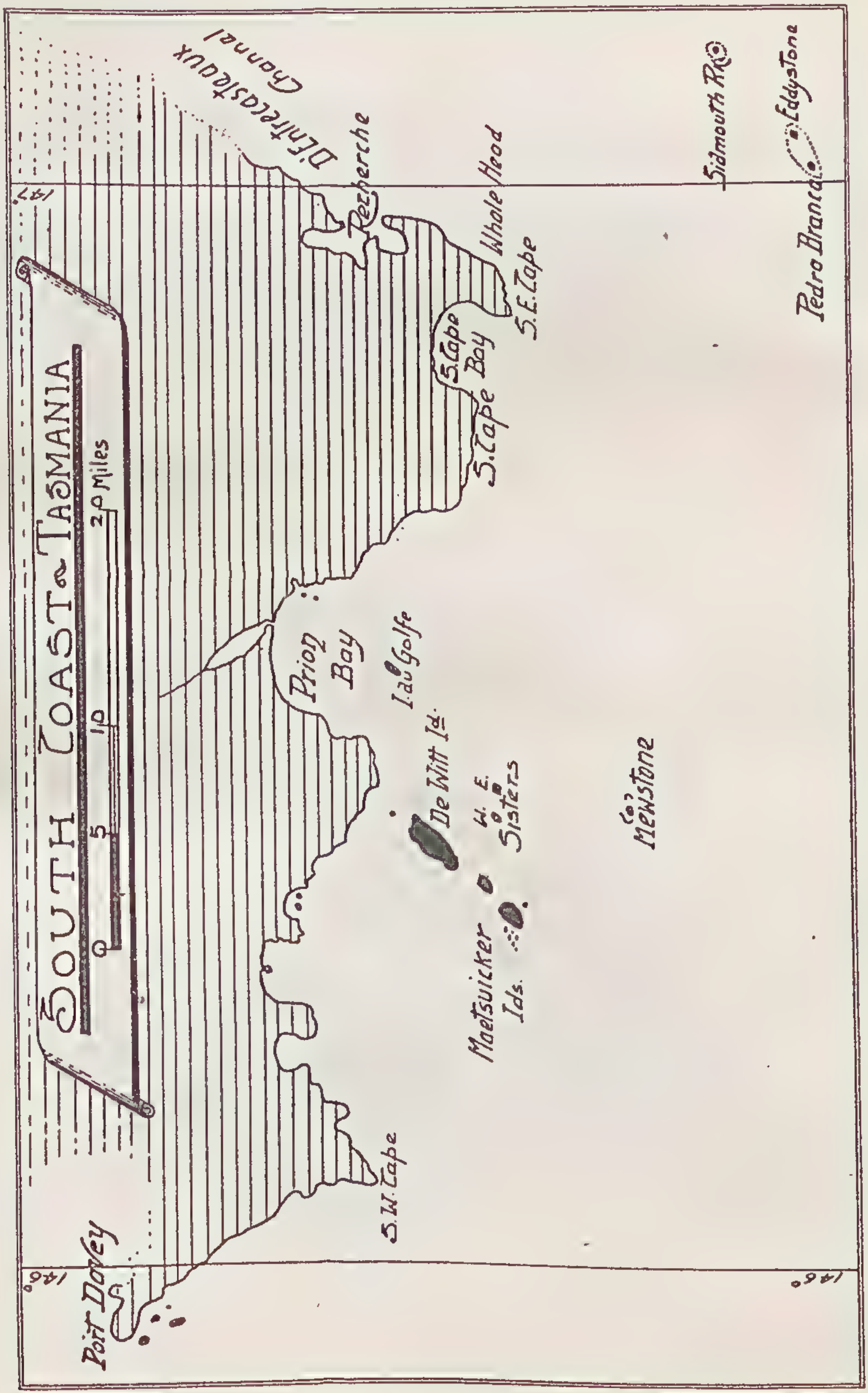


EDDYSTONE ROCK.

Photo. by R. Young.

yards in diameter and awash with a reef projecting half a mile north-east of the main rock, which derives its name from the ship *Sidmouth,* which sighted it in 1817.

Pedra Branca was named by Tasman in 1642. On November 29 he records that he was able to pass a rock "like Pedra Brance, which lies off the coast of China, and also a



large rock like a tower." The rock appears in his charts as Pedra Branca. The tower-like rock was named by Captain Cook in 1777 owing to its resemblance to Eddystone Lighthouse.

Gannets (*Sula serrator*) breed on Pedra Branca, and other species may find homes on this or the adjoining outcrops, which are lashed without ceasing by the ocean surges and in stormy weather become a veritable smother of foam.

Ile du Golfe was named by D'Entrecasteaux in 1792. It is often spoken of by fishermen as "Wedge Island," owing to the shape of its limestone formation. Prions (*Pachyptila*) breed here. The birds are known to fishermen as "Blue-bellies."

The Mewstone was sighted by Tasman in 1642, and he described it as "a small island like a lion." It was named "Mewstone" by Captain Furneaux in 1773. It is situated about nine miles south of De Witt Island, its location being latitude 43 degrees 44 minutes south, longitude 146 degrees 23 minutes east. Its cliff-like sides rise to approximately 450 feet, and there are rocks to east and west of the island. This southern outpost is described in the Admiralty sailing directions as "swarming with birds," but in spite of several attempts we have not yet been able to examine the avifaunal population of this area in detail. That Albatrosses breed there we know.

The photograph of The Mewstone illustrating this article was taken by Sir Herbert Nicholls (Chief Justice of Tasmania), who was able to approach the island but was unable to land. He reports, however, that he saw an Albatross rookery. It is generally agreed that the White-capped Albatross (*Diomedea cauta*) breeds here, but some of the fishermen state that two species of Albatross, as well as other kinds of sea-birds, also nest here. Beyond that we can state very little. It appears to be as well, however, to place what is known on record in order to arouse further interest, and to give other investigators a starting-point. It has been reported that Albatross eggs have been taken from The Mewstone and sold to collectors for export to America; but all endeavours to trace the offenders have so far met with little result as far as definite proof is concerned.

The East and West Sisters are rocky islets a few miles off the De Witt Islands. They probably provide rookeries for certain forms. Cormorants (*Phalacrocorax fuscescens*) have a small rookery on the East Sister, which is also the home of numbers of the Tasmanian fur seal (*Arctocephalus tasmanicus*).

De Witt Island. The group of islands upon the westernmost of which a lighthouse is situated are generally charted as the De Witt or Maetsuicker Islands, names bestowed by Tasman. The hardy fishermen who work this coast refer to them as "The Witches." The large island (De Witt Island)

THE MEWSTONE. BREEDING-PLACE OF ALBATROSSES.

Photo. by Sir Herbert Nicholls.

CENTRAL MAETSUICKER ISLAND.

Photo. by M. R. Freney.

NATIONAL MUSEUM MELBOURNE

is of considerable size, being some hundreds of acres in extent, and its peaks rise over 1,100 feet. It is densely wooded in parts, and its birds and general fauna would well repay detailed investigation.

Central Maetsuicker Island is unmarked on most charts. It is a large, low island, the home of Penguins (*Eudyptula minor*) and Mutton-Birds (*Puffinus tenuirostris*).

Maetsuicker Island owes its name to Tasman, who named these islands in honour of Joan Maetsuicker, a member of the Council of India. A lighthouse is on this island—the only sign of human habitation in these wildly picturesque regions of the south. Off the island are several reefs and rocks, one prominent outcrop being Needle Rock.

The foregoing gives an outline of certain of the islands of the south. There are other sections of our coast with isles of somewhat similar interest, but those of the south are clothed with the romance of history. Nearly all the early explorers refer to them, and in January, 1788, they formed a welcome landmark for the First Fleet. To-day they exist just as Tasman saw them about three centuries ago. Their rugged shore-lines and the wind-swept miles of ocean which surround them prove staunch guardians.

The present writer hopes one day to know more of them—provided the Fates are kinder as regards weather than they have been in the past. If this note should arouse wander-lust in others, one can only wish them the best of luck. For it is quite time that we had definite data as regards the bird life of this region—not only of the islands off the coast, but of the south-west portion of the mainland itself, which is an area at present uninhabited and full of interest to naturalists.

Birds of Sandy Cape, Tasmania.

By ROBERT W. LEGGE, R.A.O.U., Tasmania.*

DURING a trip taken to the West Coast in the early part of February, 1927, by Dr. W. L. Crowther, R.A.O.U., and myself, opportunity was given to observe most of the birds frequenting the country along the coast-line stretching from Marrawah to Sandy Cape, a distance of some 40 miles, which was covered partly on horseback and partly per mail-cart.

Excepting the sea and shore birds, not many species were seen on the journey to Sandy Cape, as the nature of the country is too open and desolate to attract many land birds, it being covered for the most part by open downs clad with heath, button-grass, dwarf eucalypts, and tea-tree, and swampy hollows. At Sandy Cape, however, the bleak and exposed wastes give place to a much more attractive country, for here one encounters a large tract covered for the most part by thick scrubs, consisting of so-called "manuka," tea-tree, banksia, and occasional lightwoods, with open glades here and there of good grass, a quiet lagoon, and shallow, swampy flats. All this provides a most welcome change to the traveller, giving shelter and warmth after the exposure to the prevailing south-west winds which are for ever sweeping the Southern Ocean off this coast.

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* Readers will welcome this first contribution to *The Emu* by Mr. Legge, inasmuch as he is a son of the late Colonel W. V. Legge, first President of the R.A.O.U., and one of the leading ornithologists of Australia and Ceylon.—EDITOR.

In these scrubs a number of species were seen, a list of which is given below. Amongst them was the Blue-winged Parrot (*Neophema chrysostoma*), which happened to be one of the few species hitherto not seen by me during almost a lifetime in this island.

During the early mornings of our stay, it was most pleasing to hear the clear notes of the Yellow-throated Honeyeater (*Meliphaga flavicollis*), the Grey Shrike-Thrush (*Colluricincla harmonica*) and the Grey Butcher-Bird (*Cracticus torquatus*) issuing from the manuka thickets surrounding our camp. Though we did not see one of those beautiful birds the Australian Ground-Thrush (*Oreocincla lunulata*), two old nests of the species were found, placed in the forks of banksias in dark hollows amid the sandhills. As it was in the dry season, these birds probably desert the cape for the gullies of the Norfolk Ranges, which lie back some six or eight miles, and return in small numbers during the winter. The clear metallic notes of the Olive Whistler (*Pachycephala olivacea*) caused us to pause one morning whilst traversing a tract of scrub, until, after a brief search, one of a pair was seen close at hand.

One bird which we did not see on our trip, but which we were told by our trusty young guide, Mr. Geoff. Cartledge, is quite plentiful on the road from Temma to Mt. Balfour, was the Ground-Parrot (*Pezoporus wallicus*). He told us he had discovered a nest containing two young, the parent flushing and revealing the whereabouts of the nest.

On our return to Temma from the Cape, and whilst passing a swamp close to Ordnance Point, we heard a most peculiar note uttered by some unknown bird of which we could not get a view. Its cry was like nothing I have ever heard; it was not similar to the cry of a Bald Coot, or Native Hen, or Bittern, but must have been made by a bird of considerable size.

A most interesting sight was a flock of a hundred or more Silver Gulls hovering over the wild currant bushes covering the high sand-dunes bordering the beach not far from Sandy Cape. Our guide told us that they were seeking the berries borne by these bushes. The birds were fluttering over and half perching on the bushes, whilst taking the berries. In several places along the beach we noticed the seeds from the excreta lying on the sands, close to the water's edge.

Only one species was found breeding, namely, the Red-capped Dotterel (*Charadrius ruficapillus*), of which one egg was found deposited on the sands of the great, desert-like drift on the south side of the Cape. Three Golden Plovers (*Pluvialis dominicus*) were seen to rise off the beach at Ordnance Point and take a flight out along the sea. They were very wild. On the homeward journey it was a novel sight to see a small flock of Grey Ducks (*Anas superciliosa*) rise from a reef some distance out to sea, whilst we were traversing the Arthur River beach.

On February 13, during our journey southwards, and whilst a strong south-west gale was blowing, countless numbers of Short-tailed Petrels (Mutton-Birds) were seen flying northward, in an almost unbroken stream all day long.

Following is a list of the birds noted:

White-breasted Sea-Eagle (*Haliæetus leucogaster*).—A solitary specimen was seen soaring over the moors near Ordnance Point.

Swamp-Harrier (*Circus approximans*).—One seen hawking close to Marrawah.

Brown Hawk (*Falco berigora*).—An odd one seen between Arthur River and Marrawah.

Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus*).—Small bands seen throughout the trip.

White Cockatoo (*Kakatoe galerita*).—One flock of about 30 seen at Sandy Cape, besides others along the coast.

Green Rosella (*Platycercus caledonicus*).—Fairly plentiful all along the coast traversed, and at Sandy Cape.

Blue-winged Parrot (*Neophema chrysostoma*).—A pair seen on the outskirts of the scrub-lands at Sandy Cape.

Australian Raven (*Corvus coronoides*).—Fairly plentiful. Found feeding upon the wild white currant berries along the sand-dunes.

Black Bell-Magpie (*Strepera fuliginosa*).—A few seen here and there amongst the tea-tree.

Summer-Bird* (*Coracina novæ-hollandiæ*).—One seen near Temma amid some stunted eucalypts.

Dusky Wood-Swallow (*Artamus cyanopterus*).—One small flock seen on Opossum Creek, three miles south of Temma.

Dusky Robin (*Amaurodryas vittata*).—A few seen at Sandy Cape on the open stretches beyond the scrub.

Ground Lark (*Anthus australis*).—Fairly plentiful at Sandy Cape.

White-fronted Chat (*Epthianura albifrons*).—Seen here and there along the coast; most at Sandy Cape.

Swamp Quail (*Synoicus ypsilophorus*).—A fair covey flushed out of a bed of bracken at Sandy Cape, and another near Ordnance Point.

Common Bronzewing (*Phaps chalcoptera*).—One seen in the scrubs at Sandy Cape, no doubt feeding on the seeds of the lightwood.

Brush Bronzewing (*Phaps elegans*).—One seen close to the Pedder River, not far from Sandy Cape.

Grey Butcher-Bird (*Cracticus torquatus*).—Heard near camp at Sandy Cape.

Spotted Owl (*Ninox novæ-hollandiæ*).—One heard near camp at Sandy Cape.

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* Tasmanian name for the Black-faced Cuckoo-Shrike.—EDITOR.

Golden Whistler (*Pachycephala pectoralis*).—Heard in the early mornings close to our camp at Sandy Cape.

Olive Whistler (*Pachycephala olivacea*).—A pair encountered in the scrub at Sandy Cape; very tame; allowed close approach.

Yellow-throated Honeyeater (*Meliphaga flavicollis*).—The clear notes of this fine bird were always the first to be heard in the mornings, issuing from the scrub-covered sand-hills close to camp.

Crescent Honeyeater (*Phylidonyris pyrrhoptera*).—A few seen amongst the tea-tree here and there along the coast and at Sandy Cape.

Yellow-winged Honeyeater (*Meliornis novæ-hollandiæ*).—Seen only amid the scrubs at Sandy Cape.

Beautiful Firetail (*Zonæginthus bellus*).—An odd one seen on the journey, also at Sandy Cape.

Brown Thornbill (*Acanthiza pusilla*).—Seen amidst the scrubs at Sandy Cape.

Grey-backed Silvereye (*Zosterops halmaturina*).—Plentiful wherever the wild currant bush occurs along the coast.

Striated Field-Wren (*Calamanthus fuliginosus*).—Found all along the route from Marrawah to Sandy Cape, amidst the heaths and rushes.

Superb Blue Wren (*Malurus cyaneus*).—These lovely little birds were seen in fair numbers, especially in the bracken brakes at Sandy Cape.

Brown Bittern (*Botaurus poiciloptilus*).—We started one of these birds whilst riding round a dismal, morass-like swamp in the Sandy Cape area.

White-faced Heron (*Notophoyx novæ-hollandiæ*).—One of these seen along the banks of the Pedder River, just north of Sandy Cape.

Spine-tailed Swift (*Hirundapus caudacutus*).—A flock seen hawking along the sand-dunes of the long beaches *en route*.

Welcome Swallow (*Hirundo neoxena*).—Noticed only at Sandy Cape.

Mutton-Bird (*Puffinus tenuirostris*).—These birds were noticed travelling northwards in one continuous stream on February 13 during a strong south-west gale. They seemed to us to be never-ending in their tireless flight up and down with a fair wind, making their progress apparently quite effortless, like all others of their family.

Little Penguin (*Eudyptula minor*).—These were found to have a colony on a small island quite close to the rocky promontory at the westernmost point of Sandy Cape.

Pacific Gull (*Gabianus pacificus*).—Common all along the coast, but never plentiful.

Silver Gull (*Larus novæ-hollandiæ*).—The most plentiful of all the sea-birds met with. Found feeding on the white berries of the wild currant.

Australian Gannet (*Sula serrator*).—One of these noticed fishing off the Arthur River mouth.

White-breasted Cormorant (*Phalacrocorax fuscescens*).—A few seen resting on the reefs at Sandy Cape.

Pied Oystercatcher (*Hæmatopus ostralegus*).—Common all along the coast, but nowhere numerous. The young of these birds fall an easy prey to marauding Gulls and Hawks.

Sooty Oystercatcher (*Hæmatopus unicolor*).—Seen mostly about the reefs and promontories, and not as plentiful as the Pied species.

Eastern Golden Plover (*Pluvialis dominicus*).—Three of these swift-flying visitors were seen to take flight at our approach along the sands at Ordnance Point. They were very shy, and took a long arc out to sea before alighting some distance further south.

Hooded Dotterel (*Charadrius cucullatus*).—These charming little birds were noticed on all the beaches traversed on the trip. They are quite the best-represented of the shore birds along this part of the West Coast. One of their eggs was found amid the dunes at West Point, some five to six miles south of Marrawah, on February 11.

Red-capped Dotterel (*Charadrius ruficapillus*).—These little sand-trippers were seen more amongst the great drift-dunes lying some distance back from the sea, and one egg was found and photographed, lying alongside a piece of ancient scrub on the great desert-like drift some three miles across at Sandy Cape.

Double-banded Dotterel (*Charadrius bicinctus*).—Several flocks of these typical travellers were met with on the higher levels of the great wide beaches along the coast. They were not at all shy. How fine it would be if they would only breed with us!

Black Swan (*Chenopis atrata*).—Saw four of these on the Sundown Creek, at the southern extremity of the Arthur River beach. It was blowing a howling easterly gale, and they were evidently taking shelter in the quiet stretch of water there. They were not at all shy.

Grey Duck (*Anas superciliosa*).—A few of these splendid birds were met with also at Sundown Creek, and were seen to alight on a reef out in the ocean. Others rose from a reef as we passed along.

Chestnut Teal (*Querquedula castanea*).—A few small flocks of these were found frequenting the Pedder River in the evenings. They used to sit about the beach just above the reach of the water in the daytime, and when disturbed would take a short flight out and settle on the sea.

The Genus Amytornis: A Review.

By A. G. CAMPBELL, R.A.O.U., Kilsyth, Victoria.

Amytornis textilis, Dumont.

(WESTERN GRASS-WREN.)

THIS species was first obtained (and named *Malurus textilis*) by the French Expedition which visited Shark Bay, W.A., in 1820. For type description see *Voy. l'Uranie et la Physic* (Zool., p. 107).

A good illustration is in Dumont's Plate 23, also in Mathews's *Birds of Australia*, Vol. X, Pl. 468, two lower figures. John Gould mistook the species found in New South Wales (*A. modestus*) for this one, and so for many years a mistake as to the correct type locality was perpetuated. Gould figured a darker subspecies, *A. t. macrourus,* in *Birds of Australia,* Vol. III, Pl. 30. Mathews figures the darkest subspecies, *A. t. carteri,* in *Birds of Australia,* Vol. X, Pl. 467, top figure.

EXAMINATION OF SKINS.*

2755 Male, Peron Peninsula, W.A. (Sept., 1920); upper-surface snuff-brown throughout, each feather with central shaft-streak whitish; under-surface similar but lighter, stripes on throat and breast being defined by dull tawny edges to feathers; centre of breast and abdomen nearly plain whitish; flanks cinnamon; tail pallid with obsolete fine cross-marks; under-wing and inner edge of primaries cinnamon. Length 185 mm.; bill 12 mm.; wing 68 mm.; tail 102 mm.; tarsus 26 mm.; bill and legs dark brown; bill 11 mm. × 6 deep (*plesiotype*).*

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* All specimens unless otherwise stated are in "H. L. White Collection," National Museum, Melbourne.

7457 Female, Peron Peninsula (breeding); like 2755 but without defined streaks on breast and with hazel patches on side of breast; wing 61 mm.; tail 84 mm.

2754 Female, Shark Bay, W.A.; similar to 7457.

7458 Male, Peron Peninsula (probably immature); dull like 7457; streaks not well defined on breast.

2761 Male, Lake Way (with nest and eggs; August, 1909), like 2755 but slightly darker (cinnamon-brown), especially on crown; lores tawny. Length 170 mm.; wing 63 mm.; tail 86 mm.

9235 Male, Yalgoo, paler streaks on throat and breast but otherwise like 2761; tail 92 mm.

2759 Male ⎫ Lake Way.
2760 Male ⎭ Both similar to 2761; tarsus light brown.

5660 Female ⎫ Day Dawn, 1,400 feet (lent by W.A. Mus.); darker than
5489 Female ⎭ 2755 and similar to 2761, except for hazel patch on side of breast; tails 88 mm.

0652 Female, Cue, Murchison; 1899 (in W.A. Museum); like 5660 but paler from attrition; tail 91 mm.

— Male, Gawler Ranges, S.A.; 6.8.1902 (in collection Dr. Morgan, Adelaide); similar to 2761 and slightly darker than plesiotype; much attrition of secondaries and centre tail feathers; wing 61 mm.

108 Male, 140 miles west of Tarcoola, S.A. (*i.e.* Ooldea district); Mar., 1909; similar to 2761; wing 61 mm. (This and following are in Nat. Mus. col., Melb.).

109 Probably female, Ooldea district; like 108 but with colour patch (burnt sienna), on each side of breast; back does not show tawny edges.

* * *

6602 Male, Dirk Hartog Id., W.A. (May, 1916); much darker than 2755 (mummy-brown), approaching black on crown, causing white shaft streaks to appear more prominent; under-surface darker on throat and breast; streaks more distinct; tail and a few primaries with distinct narrow cross-bars. Length 183 mm.; bill 13 mm. × 6 deep; wing 63 mm.; tail 89 mm.; tarsus 26 mm.; dark slate in colour.

6603 Male, Dirk Hartog; like 6602, but showing traces of cinnamon-brown on edges of feathers on back and rump.

A1198 Male, Dirk Hartog (in W.A. Mus.); similar to 6603.

6601 Female ⎫ Dirk Hartog; both like 6602 but more cinnamon-brown
6599 Female ⎭ in feathers of back and with burnt sienna patch on each side of breast; wings 61 mm.

6600 Male, Dirk Hartog (probably immature); like 6602, of dark tone but streaks not well defined.

* * *

2757 Male, Kalgoorlie (Nov., 1910); like 2755 but darker (Prout's brown); under-surface tawny throughout, well streaked on throat, breast and flanks. Length 170 mm.; bill 13 mm.; wing 66 mm.; tail 94 mm.; tarsus 26 mm.

2758 Female, Kalgoorlie, W.A.; like mate but with sides of breast rich burnt sienna.

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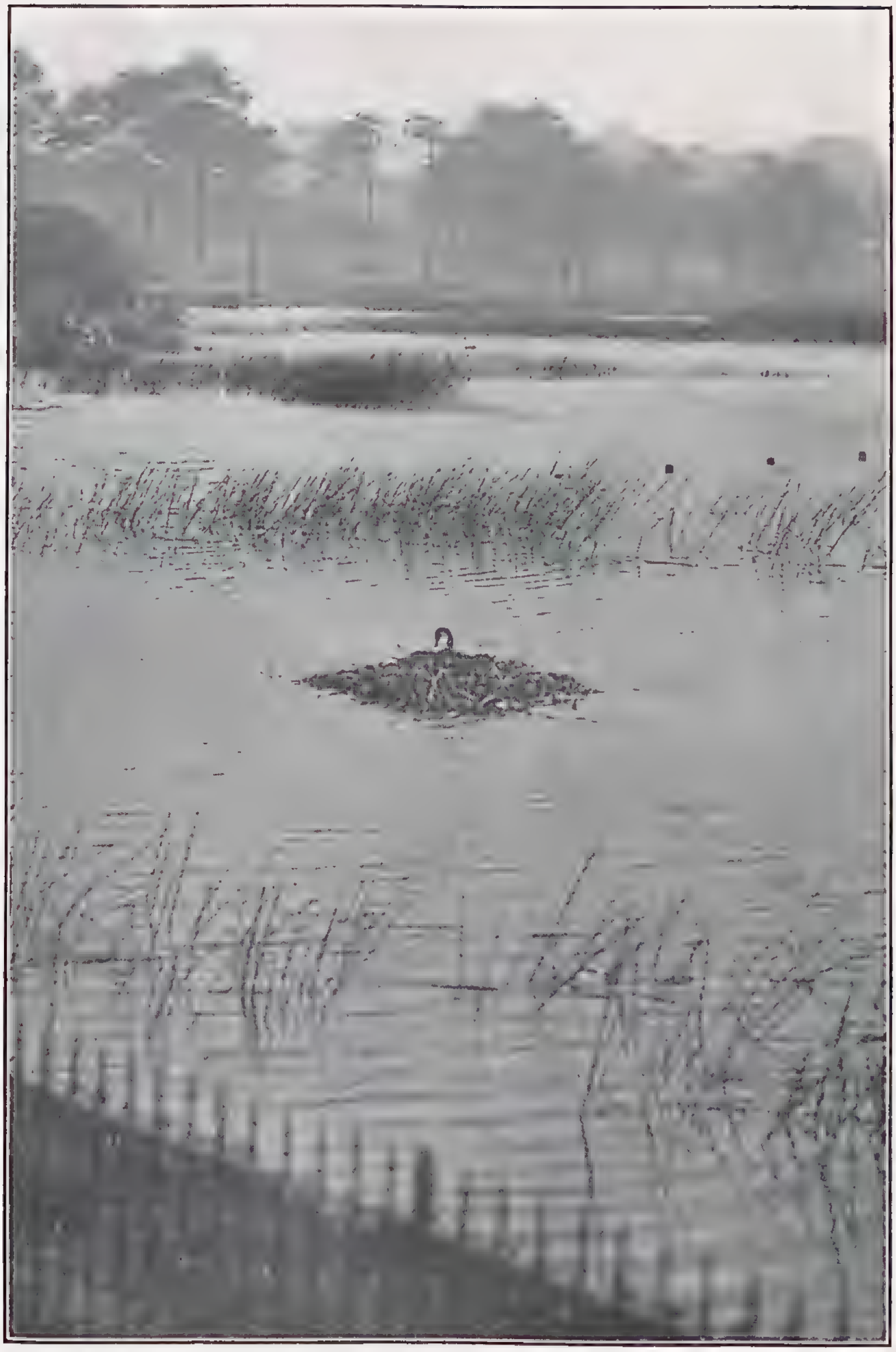
* As it seems desirable to have accredited standard specimens in Australia for future reference it is intended in this paper to make *plesiotypes* of species after reviewing all available material in existing collections and comparing with type where possible.—A.G.C.



TAME-WILD BLACK SWAN ON NEST IN CENTENNIAL PARK, SYDNEY.
TRAMS THUNDERED BY WITHIN 50 YARDS OF THE NEST.

Photo. by courtesy Sydney *Daily Telegraph.*

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REMARKS.

Among the skins from the type locality is one with an extraordinary long tail (2755) but all specimens have the whole of the upper-surface streaked; back, secondaries and rump being equally well marked. They are, however, very pale, almost white, on the centre of breast and abdomen, besides a tendency to paleness on the chin. Skins are not common, but the same characteristics are noted in birds from Lake Way, Cue, Ooldea, Gawler Ranges and Dirk Hartog Id. It is peculiar that the nearest to the type locality should differ most in general tone; Dirk Hartog birds have in other genera also shown themselves different from those of Peron Peninsula, although the two localities are only separated by the bay.

The Dirk Hartog skins are a defined subspecies, *A. t. carteri,* having little or no bright brown in the feathers of the back; the prevailing tone of which is dark (mummy) brown. The possibility of colour being reduced slightly by attrition is evidenced by skin 0652. In the greater rainfall of south-west Australia the species becomes darker in another way, mainly on the under-surface. The Kalgoorlie skins (2757-8) are *A. macrourus* (Gld.). In this respect they approach in colour of under-surface the species *A. purnelli,* but are to be readily separated by the latter not having the rump streaked. The female of the species, besides a smaller wing, can always be distinguished by the distinct bright colour-patch on each side of breast. The bill is 12 to 13 mm. long by 6 mm. deep.

The species probably has an unbroken range right through from Shark Bay *viâ* Ooldea to Gawler Ranges, S.A., inside the 10-inch isohyet. It was recorded by the Calvert Expedition about Lake Augusta, Brookman Creek, latitude 25° 40′. Specimens 2755 and 7457 may be considered plesiotypes.

Amytornis purnelli, G. M. Mathews.

(DUSKY GRASS-WREN.)

Although known for some years from the centre of the continent this dark bird was not separated, as a species, until 1914 (see *Aus. Avian. Rec.,* Vol. II, p. 99). Type locality, Alice Springs, Central Australia.

The type is figured in Mathews's *Birds of Australia* (Vol. X, Pl. 472), two bottom figures, male and female. See also *The Emu,* Vol. XXII, Pl. 50, bottom figure.

EXAMINATION OF SKINS.

110 (7) Male; Simpson's Gap (2,500 feet), MacDonnell Ranges, Barclay Expedition (May, 1911); upper-surface dark brown (Prout's) becoming russet on rump; crown, ear coverts and

malar region blackish; the whole (except rump) with white shaft streaks; under-surface rich cinnamon-rufous, well streaked on throat and breast; abdomen and flanks plain mummy-brown; tail and wing feathers showing fine dark cross-bars. Length 160 mm.; bill 13 mm.; wing 64 mm.; tail 84 mm.; tarsus 26 mm., light brown in colour.

111 (8) Female; MacDonnell Ranges (Barclay Exp. both in Nat. Mus. col.); like mate but under-wing and sides of breast russet.

O.9134 Petermann Creek, C.A.; No. 48 of Horn Expedition, 1894 (probably female); lent by Aus. Mus., Sydney; similar to 2762; wing 61 mm.

56,956 Female; Horn Expedition, C.A.; similar to O.9134 (in Nat. Mus., Melbourne).

2763 Male; Everard Ranges, S.A.; Aug., 1914; like 110 but richer colouration on throat and breast.

2762 Female; Carminia Rockhole, S.A.; Aug., 1914; like male but back lighter (Brussels brown); sides of breast rich russet.

7503 Male } James Range, C.A. (June, 1923); both like 110
7504 Male } but whole crown and back of head blackish; distinct dark cross-bars on tail and secondaries and faintly on primaries; wing 61 mm.; tarsus 24 mm.; brown in colour.

7505 Male; Missionary Plain, C.A.; similar to 7503.

7506 Female; Palm Valley, C.A.; like 7503 but sides of breast russet; wing 59 mm.; tail 76 mm.

7638 Male } MacDonnell Ranges; July, 1923; both like 110 but paler
7639 Male } (argus brown) on back and lighter on breast (wood-brown).

REMARKS.

This species (at first sight merely a richly-coloured race of *A. textilis*) inhabits the mountainous and rocky surfaces of Central Australia, where its colour assimilates with the prevailing colour of the rocks. Specimens were obtained at MacDonnell Ranges (C.A.) by the Horn Expedition as far back as 1894, and referred to as *textilis*. But critical examination reveals the fact that all such birds have no whitish shaft-streaks to the feathers of the lower back and rump, which are also of a richer colour (Prout's brown) than *textilis*; the throat and breast is boldly and evenly striped, but the flanks and abdomen are extensively darker brown and plain. These are reasonably specific differences. What may be really seasonal variation, following an exceptionally good rainfall, and not subspecific variation is noted in the most recent skins from MacDonnell Ranges 7503-4, which are very dark in colour; the head and back of neck, ear coverts and malar region are (except for the streaks) black, giving a hooded appearance. Wings and tail are beautifully marked with fine dark cross-bars or vermiculations, indications of which are noticeable in *A. textilis* only in the tail.

Two other specimens, 7638, 7639, taken later in the year, appear to show that the colour fades a little as the season advances both upper- and under-surfaces being lighter. The same difference in tone is noted between two birds from the vicinity of Everard Ranges 2763, 2762.

When further biological research has added to knowledge of the distribution of the *textilis* group, across the desert, it may be found that this dark species *purnelli* grades towards *A. textilis,* specimens of which have been taken at Ooldea, but material is at present wanting.

Specimens 110, 111 in Nat. Mus. Col. may be considered *plesiotypes.*

Amytornis modestus, A. J. North.

(THICK-BILLED GRASS-WREN.)

It was asserted by G. A. Keartland, naturalist with the Horn Expedition, 1894, that there were two kinds of Grass-Wrens in the vicinity of MacDonnell Ranges, one inhabiting the rocky outcrops and the other the plains only.

In *Vic. Nat.*, Vol. XIX, p. 103 (1902), this second species received its name. (*Type* O.23682 is in the Australian Museum, Sydney). It proves to be identical with the New South Wales bird which Gould figured in *Birds of Australia,* Vol. III, Pl. 28. It is again figured in Mathews's Birds of Australia, Vol. X, Pl. 468, top figures, left male, right female; note also similarity with Plate 469 two top figures = *A. inexpectatus.*

EXAMINATION OF SKINS.

O.10581	Male; Mossgiel, N.S.W., 1904 (this and two following lent by Aus. Mus., Sydney, being co-types); upper-surface snuff-brown, streaked on crown and back with whitish shaft-stripes; rump plain; under-surface duller, streaks on breast obsolete; throat and abdomen plain, light buff; flanks tawny-olive; bill heavy. Length 140 mm. (part of tail cut away); bill 10 mm.; wing 58 mm.; tarsus 23 mm., brown.
O.23680	Female adult; Illamurtra, C.A.; like O.10581, but no faint streaks on breast, and burnt sienna patch on each side of breast.
O.23681	Meerenie Bluff, C.A. (probably immature male); like O.10581, breast streaks indistinct.
623	Female; near Oodnadatta, S.A.; Jan., 1913 (lent by Edwin Ashby); like O.10581, but lighter on back and whiter on throat; wing 61 mm.
R.8315	Male; Lake Eyre, June, 1922; like O.10581, but lighter (tawny-olive) streaks not very prominent on back, obsolete on breast; under-wing cinnamon. Length 156 mm.; tail 76 mm.; bill heavier, 11 mm. × 7 deep (in Nat. Mus., Melb.).
7647	Male; Finke River, C.A.; July, 1923; like type but richer tone on rump and flanks; streaks on breast almost lost. Length 165 mm.; bill 10 mm.; wing 58 mm.; tail 84 mm.; tarsus 26 mm. brown.
7502	Female; Hermansburg, C.A.; June, 1923 (on plain only); like type but darker; upper-surface cinnamon-brown; wings and tail umber-brown; breast streaks faint; throat and abdomen plain light buff; flanks wood-brown; sides of breast chestnut; tarsus dark slate.

REMARKS.

This is a good species, inhabiting plain country (which is geologically younger than the mountainous region) in adjacent portions of South Australia and western New South Wales. That its habitat runs right up to MacDonnell Ranges is shown by specimen (7502) taken not far away from typical *A. purnelli,* but the label is endorsed "on plain only."

There are several type specimens in the Australian Museum. They have (*a*) no streaks on lower back, rump or secondaries; (*b*) no streaks on under-surface or faintly on breast only; (*c*) bill short and heavy, 10 to 11 mm. long by 7 mm. deep. Specimen 7502, taken 1923, shows a marked difference in general tone of plumage. As noted in *A. purnelli,* skins taken in this particular year are in richer plumage than those taken earlier in the same locality. But the difference in colour between type *modestus,* which is snuff-brown, and the above specimens, which are cinnamon-brown, is so marked that it would appear subspecific unless qualified by the above facts. The dark specimens also have the vermiculations or cross-bars on wings and tail very distinct. The normal wing of *A. modestus* is 58 mm., or 5 mm. shorter than either *A. purnelli* or *A. textilis.*

On the other hand, two specimens from the southward, near Lake Eyre (623 and R.8315), are a tone lighter than type, being tawny-olive. This approximates to a pallid race, and the question arises, Where does *A. goyderi* come in? Is it lighter still?

The species is also recorded from Ivanhoe and Gawler Ranges, S.A.*

Amytornis goyderi, Gould.

(EYREAN GRASS-WREN.)

This species was obtained at Macumbra Creek, latitude 27° 41′ 23″ near Lake Eyre, South Australia, and described in *Ann. Mag. Nat. Hist.,* Series IV, Vol. XVI, p. 286, in 1875. Types, male and female, are in the British Museum. Coloured figures of types are found both in *Birds of New Guinea* (by Gould and Sharpe), Vol. III, Pl. 8, and Mathews's *Birds of Australia,* Vol. X, Pl. 471.

REMARKS.

Nothing is known of this species beyond what is told with the type description (length 147 mm.; wing 57 mm.; bill 10 mm.). The specimens were sent by the South Australian Museum to the British Museum, where they remain, a unique pair.

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* *Nests and Eggs,* North, p. 249.

Mathews takes his description also from the types, and it is evident from comparison of his plate and text with those of Gould and Sharpe that the species is more cinnamon-coloured above than any other, but that they have the short, stout bill and the plain under-surface of *A. modestus.* Fawn is the colour stated by Gould, though his plate is a tawny tone, according to Ridgway's Chart. The colour of Mathews's figure is walnut-brown (dark fawn) above, with flanks a fawn colour.

There are birds noted under *A. modestus,* taken in Lake Eyre district, which are lighter in colour, some specimens showing fawn or wood-brown flanks. It may be that the pallid variety of *A. modestus* is the long-lost *A. goyderi.*

Amytornis striatus, Gould.

(STRIATED GRASS-WREN.)

Gould fully described this species from western New South Wales in *Proc. Zool. Soc. Lon.,* p. 143, 1840; but he states he considers the drawing by Lesson in *Traite d'Ornithologie,* p. 453 (1831) to be the same species.

Specimen A.7974 in Aust. Mus., Syd., and No. 2752 in H. L. White Collection, Nat. Mus., Melb., may be considered *plesiotypes.* Coloured figures are Gould's *Birds of Australia,* Vol. III, Pl. 29; Mathews's *Birds of Australia,* Vol. X, Pl. 470, left hand and bottom figures; also Pl. 469, bottom figure = *A. s. merrotsyi.*

EXAMINATION OF SKINS.

A.7974 Mossgiel, N.S.W., June, 1880 (probably male; lent by Aus. Mus., Syd.); upper-surface rufous (Sandford's) brown each feather having white central stripe bordered with two wide dark brown stripes, all of which are bolder on forehead and cheeks; rump olive-brown; malar region plain black; outer edge of primaries bright Sandford's brown; under-wing and inner edge of primaries at base hazel; upper throat whitish, breast buffy-brown with whitish central stripes; abdomen olive-buff; flanks buffy-brown; wings and tail fuscous; fine cross-bars on tail and secondaries. Length 165 mm.; bill 10 mm.; wing 63 mm.; tail 89 mm.; tarsus 26 mm.

2752 Coronga Park, Byrock, N.S.W.; Nov., 1896 (probably female); like A.7974, but throat and flanks slightly darker and with hazel colour-patch on each side of breast; wing 61 mm.

* * *

2743 Male } Linga, Mallee, Vic.; both much darker than A.7974;
2745 Male } crown and rump with more mummy-brown and less rufous-brown in feathers; wings and tail darker; throat white; breast boldly streaked; abdomen ochraceous-buff; flanks olive-brown.

R.5397 Male } Mallee, Vic.; Nov., 1911; both similar to 2743.
R.5398 Male } (in Nat. Mus., Melb.).

7456 Female; Linga, V.; like 2743; but with amber-brown patch on sides of breast (figured *The Emu,* Vol. XVIII, Pl. XV).

2744 Female } Linga, V.; Sept., 1918; both similar to 7456.
2745 Female }

7462 Male; Kow Plains, Mallee, V.; Sept., 1912; like 2743, but throat less white.

2749 Immature female; Linga, V.; upper-surface with no rufous colour, that is, all mummy-brown with central shaft streaks showing faintly on crown and back; under-surface fluffy; throat grey; breast buff; flanks olive-brown; bill and legs yellowish-brown; bill 7 mm.; wing 58 mm.; tail 63 mm.; fine cross-bars on tail and secondaries; bright brown patch at base of primaries.

620 Male; Mirar Head, Hooper, S.A. (Mallee, Sept., 1912); (this and following lent by Edwin Ashby); similar to 2743; wing 66 mm.

621 Male; Loxton, S.A.; similar to 2743.

* * *

00 Male; north-east of Lake Torrens, S.A. (type of *A. merrotsyi*, J. W. Mellor, *Emu*, XII, p. 166); darker than plesiotype (A.7974); lower back, wings and tail mummy-brown like 2743, but malar stripe not prominent, being overlapped at sides by small black feathers with white shaft-streaks; throat and abdomen plain buff; breast buffy-brown with light central stripe. Length 152 mm.; bill 13 mm.; wing 63 mm.; tail 76 mm.; tarsus 26 mm.

REMARKS.

The "striatus" group or subdivision of the genus *Amytornis* is distinguished from the "textilis" group by having throat white or nearly so, malar region plain black, not streaked with white, and by having a prominent colour-patch at the base of the primaries on the outside edge.

The typical bird coming from western New South Wales has two tones of brown in the feathers of the back, a bright rufous-brown known as Sandford's and a darker mummy-brown; throat is light buff and breast is well streaked. The female has a colour-patch on each side of breast as bright as the colour-patch on the wing, which latter is common to both sexes.

A distinct offshoot or subspecies is found in the Mallee of Victoria and South Australia, a darker bird, having lost much of the bright brown in the feathers of the back; throat being pure white—*A. s. howei.*

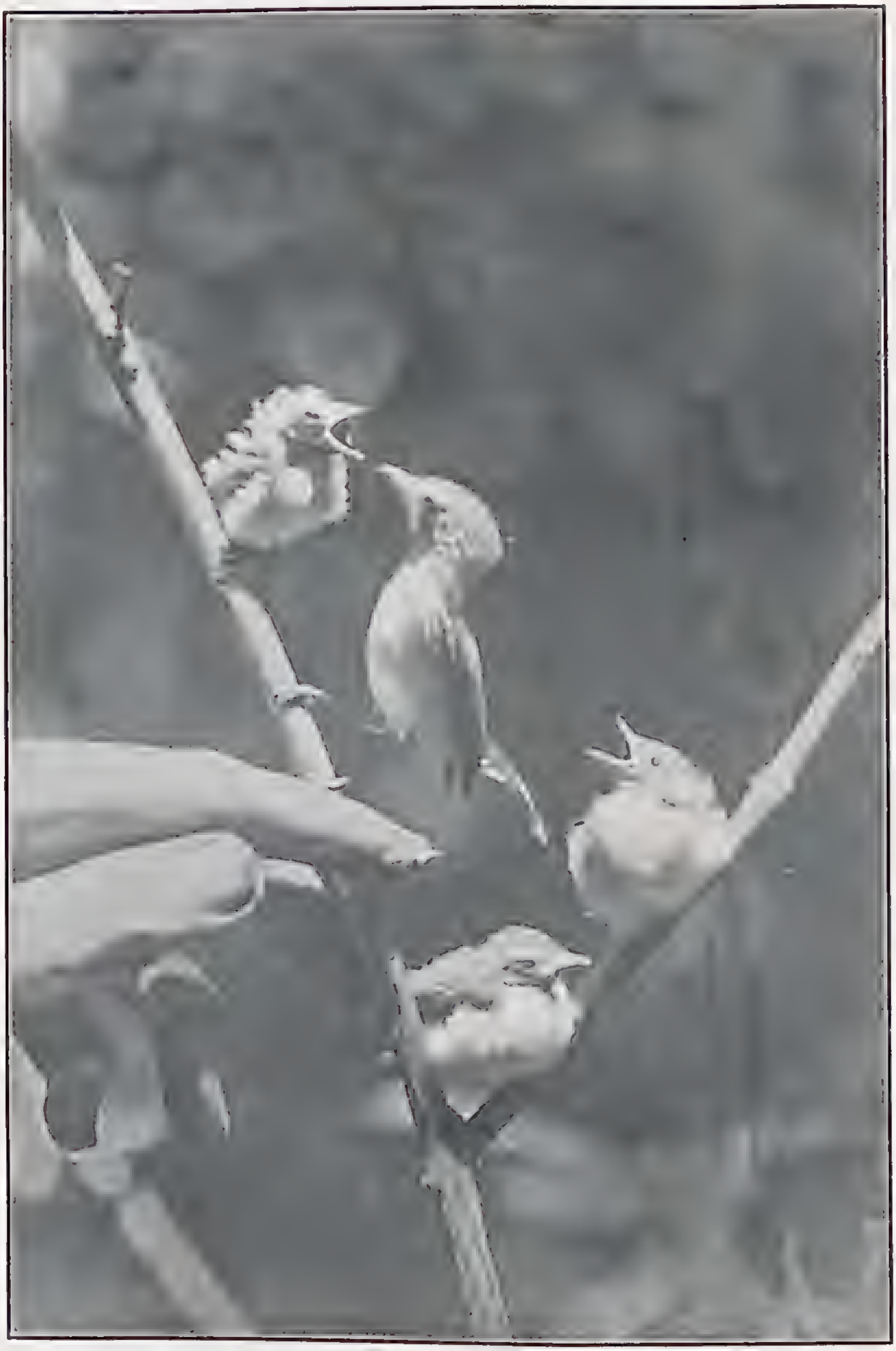
Again, there appears to be an offshoot to the south-west in South Australia. Three birds were taken near Lake Torrens and named *A. merrotsyi,* but they prove to have all the characters of *striatus,* with the difference that the black malar stripe is not so prominent, being restricted in size by the short feathers at the edges having white centres.

Amytornis whitei, Mathews.

(RUFOUS GRASS-WREN.)

A species first separated as distinct from *A. striatus* in 1910 (see *Bull. Brit. Orn. Club,* Vol. XXV, p. 34).

Type is figured in Mathews's *Birds of Australia,* Vol. X, Pl. 470. top figure; the darker subspecies in Northern



FAMILY STUDY OF BROWN WARBLERS (*Gerygone*).

Photo. by A. H. Chisholm.

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Territory, *A. w. rufa,* appears in *The Emu,* Vol. XXII, Pl. 50. Specimen 2748 in H. L. White Col. may be considered a *plesiotype.*

EXAMINATION OF SKINS.

2748 Male; Nullagine, W.A.; Aug., 1914; upper-surface burnt sienna (bright brown) with white central stripe only; rump plain; wings and tail mummy-brown with fine dark cross-bars; secondaries edged burnt sienna, also the outer webs of primaries at base; malar stripe black; throat white; breast and abdomen cinnamon-buff, streaked whitish only on sides of breast; flanks tawny. Length 165 mm.; bill 11 mm.; wing 63 mm.; tail 84 mm.; tarsus 26 mm.

6813 Male; Hammersley Ranges, W.A.; Oct., 1922; like 2748 but slightly darker on crown and back; streaks on breast more prominent; abdomen darker (clay colour).

3652 Mt. Stuart, Ashburton Riv., W.A. (lent by W.A. Mus.); like 2748 but lighter on back and with amber patch on side of breast (probably female).

2751 Male } Borewell, East Murchison, W.A.; July, 1909; both like
2756 Male } 2748, but lighter plumage; streaks on breast not prominent.

2750 Female; Borewell, East Murchison; like mate 2751 but fewer streaks on breast; sides of breast amber-brown.

2753 Female nestling; Borewell, East Murchison, Sept., 1909; upper-surface hazel with faint white streaks on crown and back; under-surface fluffy greyish; flanks buff; wing 46 mm. tail 26 mm.

* * *

1'7795 = 47 Male; Central Aust. (Horn Exp., Dec., 1897); like 2748 but upper-surface brighter burnt sienna and breast-streaks very few and faint; abdomen lighter.

32 Male; latitude 19° 27′; Northern Territory; similar to 47.

37 Male; Lander Creek; Northern Territory; Feb., 1912; similar to 47. (These two specimens taken by the Barclay Exp., types of *A. rufa,* Campbell and Kershaw, *The Emu,* Vol. XII, p. 274, are in Nat. Mus., Melb.).

REMARKS.

The character that raises this to the status of a species is the even and bright tone of brown in the feathers of the back, there being no dark brown stripes on either side of the central shaft-stripe, as are found in *A. striatus.*

The rump, as in *A. striatus,* is plain or but faintly streaked; but brighter in tone; the under-surface of both species is somewhat similar, except that the flanks of typical *whitei** are darker. On this account the female is not as readily determined because the flanks and sides of breast are equally dark. Even in specimen 2750, a pallid bird, the sex-mark is at least as bright as the wing-patch.

To the west of the type locality (which is Coongan River, W.A.), a slightly darker bird was procured, in Hammersley Ranges; its dark abdomen attracts attention, but this may be seasonal. To the south, however, in Ashburton and Murchison districts, is a slightly lighter or pallid form. The nestling is always interesting; in specimen 2753 the streaks are only just appearing on the crown.

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* Calvert Expedition record *"striatus"* (probably this species) in W.A., about latitude 23° 30′. *Trans. Roy. Soc. S.A.,* 1898, p. 176.

There is one undoubted subspecies in *A. w. rufa,* from Central Australia and Northern Territory. This has upper-surface a richer tone, but abdomen lighter and streaks on breast very faint.

Amytornis dorotheæ, Mathews.

(DOROTHY GRASS-WREN.)

This larger species was described by Mathews in 1914 (see *Austral Avian Record,* Vol. II, p. 99). Type is figured in Mathews's *Birds of Australia,* Vol. X, Pl. 472, top figure. Specimen No. 2739 in H. L. White collection is a *co-type.*

EXAMINATION OF SKINS.

2739 Male; McArthur River, Northern Territory, Sept., 1913; crown black; rest of upper-surface argus brown, each feather with a bold white central shaft-stripe; throat, breast and centre of abdomen white; flanks ochraceous-tawny; some feathers streaked white; tail and wings blackish with distinct fine black cross-marks; under-wing hazel. Length 170 mm.; bill 13 mm.; wing 63 mm.; tail 58 mm.; tarsus 26 mm. brown.

2740 Male; McArthur Riv., N.T.; similar to 2739 but tail much frayed.

2741 Male } McArthur River, N.T.; Feb., 1914; both similar to 2739.
2742 Male }

REMARKS.

These four skins taken in the type locality have many characteristics of the "striatus" group but distinct specific characters of their own, *videlicet* black crown, expansive white throat, breast and centre of abdomen, and broad white streaks on flanks. It is plain that this species is a development from the dark subspecies, *A. whitei rufa.* The birds made their way northward into better rainfall and therefore better conditions; and in all respects the species is a connecting link between *A. whitei* and *A. woodwardi,* of the region still further north, differing from the former by having the white continuous from throat on to abdomen, and from the latter by having lores distinctly tawny, not white, as well as a shorter tail.

There appears to be no female specimen available for comparison. Judging from other species of the genus there should be a distinguishing mark in the bright brown patch found on each side of the breast, or perhaps a darker abdomen. *A. woodwardi,* however, which appears to be a larger form of *A. dorotheæ,* shows a remarkable difference in sexes; abdomen in the male is tawny, much as in these four males, but in the female, chestnut, many tones darker.

Mr. G. F. Hill informs me that he has seen an *Amytornis* which resembled *dorotheæ* at a point near the mouth of

Adelaide River, N.T., about 35 miles south-east of Darwin. The birds frequented jungle patches that followed the springs out on to the plains from the poor hills. This is a different habitat to the McArthur River, where the species occurs on the broken sandstone plateau.

Amytornis woodwardi, Hartert.

(WHITE-THROATED GRASS-WREN.)

This fine species was described in *Bull. Brit. Orn. Club*, Vol. XVI, p. 30, 1905, from the South Alligator River, Northern Territory. The *type* in Tring Museum, England, is figured in *Novitates Zoologica*, Vol. XIII, p. 754, Pl. 1, Matthews's *Birds of Australia*, Vol. X, Pl. 473, figures male and female.

EXAMINATION OF SKINS.

11297 Male; Alligator River, N.T., 15.8.03 (this and three following, lent by W. A. Mus., are *co-types*); malar region plain black; crown and back of neck black with white bristly shaft-streaks; back has additional bay edges to feathers; rump bay-brown dully centred buff; wings and tail black; secondaries and tail edged bay; lores and throat white; sides of breast black with white centres; abdomen bay. Length 218 mm.; bill 15 mm.; wing 72 mm.; tail 107 mm.; tarsus 29 mm.

7571 Female; South Alligator River, N.T.. (granite ranges, 20.5.03). Like 11297 on upper-surface though more streaked black and white on rump; abdomen much paler, being hazel; flanks, under-tail coverts, and tibia faintly centred dark brown; wing 74 mm.; tail 112 mm.

7572 Male; Alligator Riv., N.T.; similar to 11297.

7574 Female; Alligator Riv., N.T.; faintly lighter on back than 7571 and a tone lighter (ochraceous-tawny) on abdomen.

B.1476 Female; Mary River, Northern Territory (lent by the South Aus. Mus.); crown and back black with bold white bristly shaft-stripes; rump and abdomen deep bay-brown; malar region black; lores and throat white; breast blackish feathers with broad white centres; wings and tail black with distinct fine cross-marks; outer webs of all feathers edged bay. Length 203 mm.; bill 15 mm.; wing 76 mm.; tail 102 mm.; tarsus 26 mm.

REMARKS.

This rarity is evidently a giant development of the "striatus" group in Northern Territory, where, with a rainfall of over 30 inches *per annum,* conditions become vastly improved. *Amytornis* is, in the main, a genus developed under strictly desert conditions, so it is remarkable to find two large species in the Northern Territory. Doubtless there are rocky outcrops and other environment peculiarly suited to their needs in the regions they inhabit.

Reference to the type description shows that the female has a deeper coloured abdomen than the male. Two pairs of birds in the Western Australian Museum are apparently transposed in this one particular, abdomen being bay-brown in males and tawny in females (the reverse of the type description).*

A. woodwardi† resembles *A. dorotheæ* with its extensive white throat; but is much larger, lores are white, not tawny, and feathers of sides of breast are black with prominent white centres, while the wings are all black, without the hazel inner-webs of *dorotheæ* and the *Amytornis* generally. It is a remarkable feature that one sex is many tones lighter on the abdomen than the other.

Skin 7574, the palest of the quartet, is of similar tone to *A. dorotheæ,* 2739. The above specimens, being taken by the same collector, Tunney, at the same time as type, are therefore co-types.

Skin B.1476, in the South Australian Museum, is similar to co-type, 11297, although the sex is differently marked.

Amytornis housei, Milligan.

(BLACK GRASS-WREN.)

This was taken to the west of Charnley River, N.W. Aus., and described in the "Report of the North-west Kimberley Expedition" (see W.A. Parl. Pap. No. 2, p. 58, 1902).

Type in Western Australian Museum, No. 4766 (male). Coloured figure of type is found in *The Emu,* Vol. IV, Pl. 13; also Mathews's *Birds of Australia,* Vol. X, Pl. 474.

REMARKS.

This, the largest of the genus, is one of the rarities. Plumage is mainly black, each feather with a white shaft-streak, except on rump, which is deep (bay) brown. Type measures in length 203 mm.; bill 18; wing 76; tail 90; tarsus 29 (Milligan).

This species was observed only in country strewn with piled-up masses of sandstone, exceedingly rough, and in tone chiefly shading from red to black. The colouring of the bird harmonized so perfectly that it might easily pass unnoticed.

Three specimens were taken. No. 4767 (co-type, male) is similar to type in having under-surface all black, but No. 4768 (marked female) differs in the colour of the breast and abdomen, being chestnut with buff shaft-streaks; under-tail coverts blackish with chestnut streaks.*

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* Referring to these specimens, the Curator of the W.A. Museum writes: "As regards the sexing there is little I can say to settle the problem. The birds were shot by J. T. Tunney, who also prepared the skins and noted the sex on the labels. In the register notes the sexes agree with those quoted on the labels at present attached to the specimens."

† In *Novæ Zool.* Vol. XII, p. 225 (1905), under the name *A. housei,* specimens from Arnheim Land are reviewed, which obviously belong to this species, four being females have deeper chestnut abdomen than the males.

This species is apparently a giant development in north-western Australia (where the annual rainfall is at least 30 inches) of *A. purnelli,* belonging to the "textilis" group.

Effects of Droughts on Bird-Life in Central Queensland.

By H. G. BARNARD, R.A.O.U., Brisbane.

IT is a well-known fact that many of our native birds are becoming very scarce, and some of them will soon be extinct. From observations extending over a number of years, I suggest that the chief causes are the disastrous droughts which have devastated the country from time to time, and the bush fires indirectly caused by droughts. But that drought and fires are not the only causes in the disappearance I will endeavour to show.

In the 'eighties the seasons were far more uniform than they have been of later years. At that time Central Queensland was naturally well watered by numerous creeks and large swamps; the water-holes in the creeks and many of the swamps were permanent and were the homes of hundreds of water-fowl and waders. The birds bred freely every season and this kept their numbers from decreasing. This applied to the land birds as well as water-fowl. Gradually the country became heavily stocked with cattle and sheep, and this soon began to show its effect on the natural waters. Continual trampling of the surface and keeping the grasses short caused soil to be washed into the creeks and swamps, which in time levelled up; and at the present day one could travel across hundreds of creeks and swamps where no water would be found after three months' dry weather. As a consequence, where once birds of all kinds were abundant, only few are now to be seen, because their food—fish and water-weeds for the water-fowl, and insects and grass seeds for the land birds—is gone. Many of our best seeding grasses have died out and only the coarser kinds remain.

Towards the end of the nineteenth century the seasons became worse and worse, culminating in the disastrous drought of 1901 and 1902. These years almost wiped the birds out of Central Queensland. Emus, Scrub-Turkeys, Pelicans, Bitterns, Kingfishers, Magpies, Coucals, Honeyeaters *et cetera,* either disappeared altogether or were represented by only a few survivors, and it was not till many years after that some of these birds began to appear again. Even now (1927) they are not in anything like the numbers they were before 1901 and 1902. This is to be accounted for a good deal from the fact that since 1902 we have had further severe droughts.

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* Mathews's plate shows a second figure, apparently specimen 4768. From the lack of boldness in the white striations and smaller size (192 mm.) it is a different sex or an immature bird.

A strange thing was that the Squatter Pigeon (*Geophaps scripta*), a seed-eating bird, lived through the drought, and bred very freely during 1903 and 1904. They then completely disappeared and have not reappeared. At the present time a few of them are known to exist on some of the coastal stations north of Rockhampton.

During the winters of 1904 and 1905 hundreds of domestic cats, gone wild, and the spotted native cats made their appearance, and to this cause I attribute the disappearance of the Pigeons. I continually came across Pigeons' feathers in the long grass and in hollow logs. With the disappearance of the Pigeons went the cats—whither?

It is not only the water-fowl and insect-eating birds that have become depleted in numbers, but among our beautiful Parrots (both honey- and seed-eating) the decrease is very marked. Years ago the Honey-Parrots were frequently seen in very large flocks, and the flowering trees were a babel of shrieks and whistles. Of late years the trees do not bloom during the whole season, thus depriving the birds of both honey and seed.

To a bushman, especially a nature-lover, it is a very sad thing to wake in the early morning beside his camp-fire and listen for the early morning chorus of his feathered friends and to be rewarded only by a few feeble notes. The bush will indeed become a lonely and mournful place if our birds continue to decrease.

Subjoined is a list of birds, specimens of which I have seen dead from starvation during drought time:

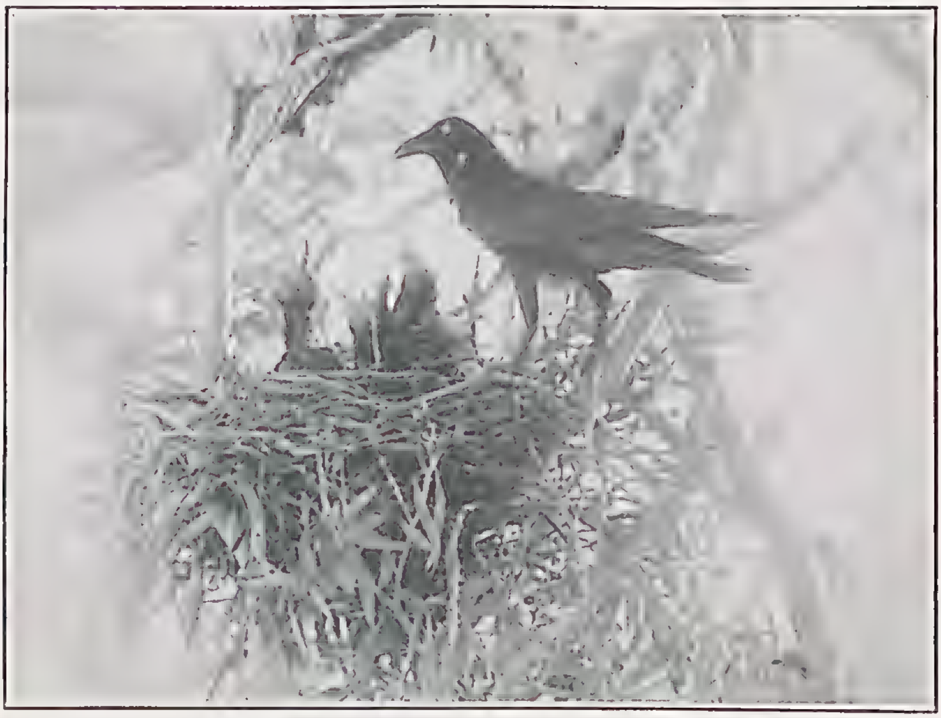
Dromaius novæ-hollandiæ, Emu.—In the great drought of 1902, many of these fine birds died. A few were seen dead on Rio station, Dawson River, in 1922 and 1926.

Alectura lathami, Brush-Turkey.—Seen dead on Coomooboolaroo station in 1902. During the drought of 1922 the birds were so poor and weak that they could not fly and could be run down on foot.

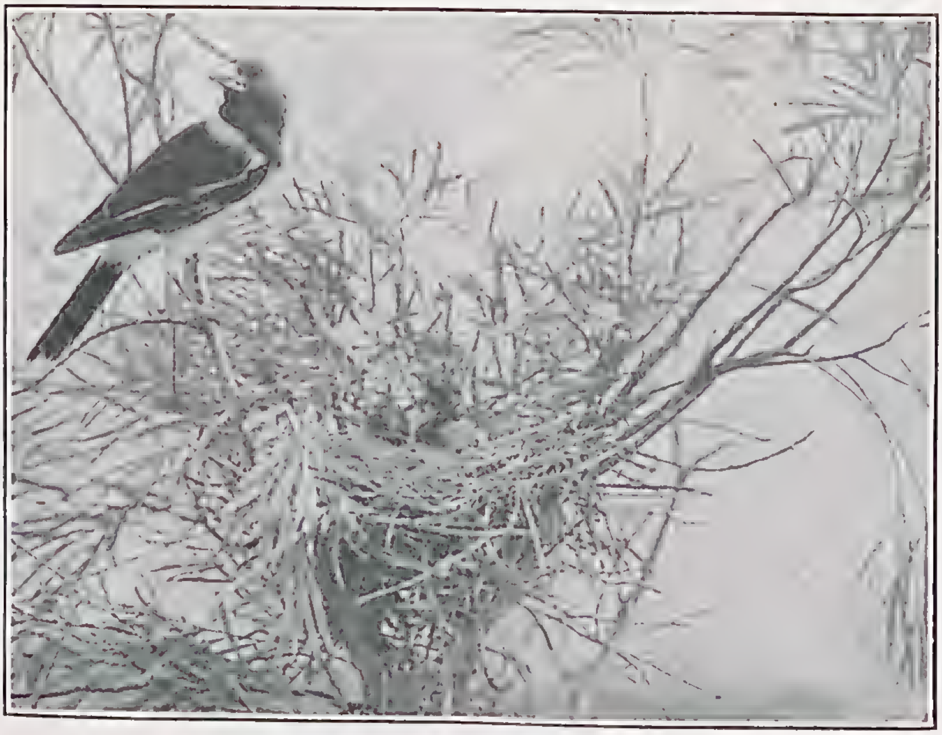
Pelecanus conspicillatus, Australian Pelican.—In dry, cold winters these birds often died about lagoons. In the cold dry winter of 1922 many Pelicans died on a lagoon at Rio station. Evidently fish were very scarce and the birds remained about the lagoon till they became too weak to seek other waters. They were only bone and feathers. So hard pushed were they for food that they would walk from the lagoon to get scraps of meat thrown to the fowls.

Gymnorhina tibicen, Black-backed Magpie.—Seen dead in numbers on Coomooboolaroo in 1902; also on Rio in the winter of 1922.

Dacelo gigas, Laughing Kookaburra.—During the drought of 1902 these birds died in numbers on Coomooboolaroo. Many appeared to



AUSTRALIAN RAVEN AND YOUNG. (GLARING SUNLIGHT MADE PHOTOGRAPHY DIFFICULT IN THIS CASE).



BLACK-THROATED BUTCHER-BIRD AND YOUNG.

Photos. by D. W. Gaukrodger.

NATIONAL MUSEUMS OF CANADA

die during the night, as they were often found dead under their roosting perches. On Rio station (Dawson River) in the drought winters of 1919 and 1922, many were seen dead, and others were so weak that they could not fly into the trees, but perched on logs. On being approached they would make a short flight and light on the ground, where they were easily caught.

Dacelo leachi, Blue-winged Kookaburra.—These birds were not so numerous as the common "Jackass," and in 1902 were almost exterminated. They increased later, but in the severe winters of 1919 and 1922 they died in numbers on Rio station.

Cracticus torquatus, Grey Butcher-Bird.—Seen dead on Coomooboolaroo during the drought of 1902, and on Rio station in the winters of 1919 and 1922.

Cracticus nigrogularis, Pied Butcher-Bird.—One would think such species as Butcher-Birds would be the last to die from starvation, but in 1902, when the whole of Central Queensland was without a vestige of grass, when the timber on miles of country completely died out, and insects and small birds and reptiles completely disappeared, they died as freely as any other kinds of birds. While I camped on Coomooboolaroo station in the winter of 1926 (when the worst drought since 1902 was raging), snaring wallabies, these birds were so hungry that they took bits of meat from my hand; and when their hunger was satisfied they still continued to take it, but flew off with it, and after placing it in a crack or fork of a tree, returned for more, which was treated in the same way. I did not remain in the locality after the end of June, but as the drought continued till December, probably many of them died.

A list will suffice of smaller birds seen dead in the winters of 1902. 1915, 1919 and 1922. Probably many died in 1926, as it was one of the worst droughts known in Queensland, but I was not in the "bush" after June, and the drought did not break till the middle of December. However, I received information from reliable sources that Emus died in numbers. Most of the birds were dead in the winter months, scarcity of food combined with the cold being the cause. Here is the list:

White-winged Chough (*Corcorax melanorhamphus*), Grey-crowned Babbler (*Pomatostomus temporalis*), Black-faced Cuckoo-Shrike (*Coracina novæ-hollandiæ*), Magpie-Lark (*Grallina cyanoleuca*), Grey Shrike-Thrush (*Colluricincla harmonica*), Rufous Whistler (*Pachycephala rufiventris*), Golden Whistler (*Pachycephala pectoralis*), Hooded Robin (*Melanodryas cucullata*), Jacky Winter (*Micrœca fascinans*), Willie Wagtail (*Rhipidura leucophrys*), Brown Weebill, (*Smicrornis brevirostris*), Little Thornbill (*Acanthiza nana*), Purple-backed Wren (*Malurus assimilis*), Red-backed Wren (*Malurus melanocephalus*), Dusky Wood-Swallow (*Artamus cyanopterus*), Black-headed Pardalote (*Pardalotus melanocephalus*), Noisy Miner (*Myzantha melanocephala*), Noisy Friar-Bird (*Philemon corniculatus*), Double-bar Finch (*Staganopleura bichenovii*).

Blue-winged Parrots Near Broken Hill.—A bird-trapper brought me three Grass-Parrots (*Neophema chrysostoma*), the first that I have seen from about here. He trapped them from a flock of nine. A dry season such as this is the trapper's opportunity, as the watering-places for birds are few and far between—mostly troughs at wells and bores, as all open waterholes are dry.—W. MACGILLIVRAY, Broken Hill (May 20, 1927).

The Curious Frogmouth.*

By Florence Irby, R.A.O.U., Casino, N.S.W.

In the tea-tree swamps at the back of my North Coast (N.S.W.) home, the nests of these quaint, semi-nocturnal birds may frequently be seen, built fairly high on the tea-trees. The nest at first sight might easily be taken for that of a Magpie, but is very much flatter, and usually considerably more frail, in general appearance. These birds seem to return very often to the same nesting-site, or to one near it. For three years in succession I noted a nest built on the low, spreading branches of a wild apple tree right above a bush track where people frequently rode or drove.

During several years a pair nested on the roots of a large orchid (*Cymbidium*), which grew in a hollow half-way up a gum-tree, beside a very busy road. On the side of a hill on the Tweed River, where scrub had been felled, a pair chose the strangest situation which I have seen for a "Mopoke's" nest. There was a tall stump very little thicker than a telegraph pole, and just as bare and straight, though considerably taller, and right on the jagged top, where the sapling had been broken off during the felling of the timber around it, the birds had built their frail nest of small twigs. There was only just room for it—many of the twigs projected over the sides. For two seasons in succession the *Podargus* elected to nest there, and sit exposed to the full heat and glare of a North Coast October sun! All day the female would sit like an animate piece of wood, apparently oblivious of all around, her big round eyes narrowed to the merest slit, and only altering her position slightly—lengthening her body and stiffening her quaint head so that she seemed to become an actual part of the broken stump—if one threw anything near enough to attract her attention. How the chicks ever managed to keep their place on top of that narrow pole I do not know.

My brother told me of a "Mopoke's" nest which he found on the fairly low bough of a wild apple tree. One of the parents sat on the nest (which contained a newly-hatched young one), and on the ground below sat the other old bird on a similar chick. We could only conjecture that the little one had over-balanced or been blown out of the nest, and the parents, having no means of returning it to the nest, were caring for it there.

A friend told me that once, on the North Coast, he found a "Mopoke's" nest containing four young ones, half-fledged; three of the chickens were normal, but the fourth was snow-

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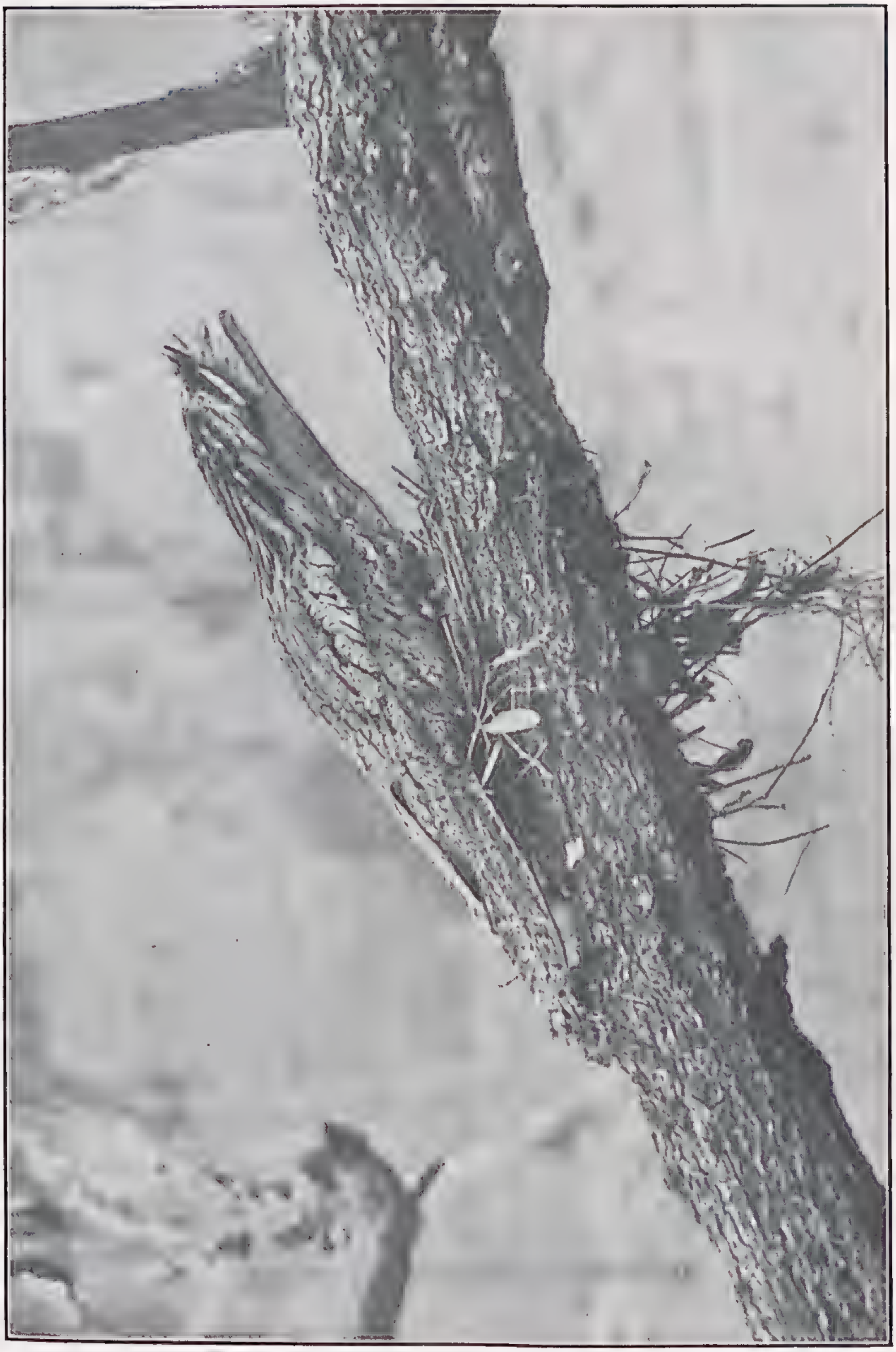
* *Podargus strigoides.*



TAWNY FROGMOUTH BROODING.

Photo. by Otho Webb.

white, with pinkish eyes. This was not the only occasion upon which I heard of an albino, as another friend in the same district had a tame one, picked up when very young; although like the rest of its tribe in all other respects, its feathers were pure white and the eyes pinkish.

Whether their small feet make them clumsy and less able to cling than most baby birds, or whether the shallow nature of their nests renders them especially liable to fall out, I know not; but certainly very many of these birds, while still at a most helpless age, seem to fall to the ground.

One morning early in October, after an unusually heavy gale, I picked up one—an exquisite, grey-white creature, with a few dark markings; it was evidently but a few days old. As the nest was high in a paper-bark tea-tree, there was no chance of returning the bird to its home; and as foxes abounded in the dense parts of the swamps, I could not leave the helpless waif at their mercy. Up in the nest sat the parent bird, drawn out to her fullest length, precisely like some weather-beaten stick, with another wee ball of fluff beside her. Her slits of eyes grew big and round, and blazed like little lamps, as she watched me carry off her unlucky nestling, but she made no attempt to stop me.

Of all the derelict baby birds we have picked up and cared for until they were fitted to rejoin their own folk, this was the most lovable and most gentle. He was more like some soft, confiding kitten or other small mammal than a bird, loving to be nursed and fondled. His feet were small and weak, quite out of proportion to his plump, round body, and his great, alarming beak was as soft as putty. His sole means of defending himself in times of stress seemed to be the extraordinary ability to make himself uncannily grotesque. His chief characteristic was an intense gravity—a gravity so profound that it made one feel that the faintest smile suggested a loud laugh in a cathedral.

In my anxiety not to alter in any way this "Mopoke's" manner of living, I imagined that he would wish to turn night into day, and keep late hours; but I soon discovered my mistake, for in his earlier days he was not nocturnal at all, and the poor baby was just as desirous of being cuddled up and going to sleep at sundown as any other chick could have been. If left alone on the dark verandah, he would toddle in with awkward, waddling gait directly the dining-room lamp was lighted, and look around for something warm in which to tuck himself away; and usually he ended by climbing on to my mother's footstool and hiding in the folds of her dress! Afterwards he slept in a little box in my room. On moonlight nights he would often wake, but if it was dark usually slept till morning.

This Frogmouth had many notes besides his baby squeak, and as he grew older and lost that he made more frequent use of them; but he never was at any period what might be termed a loquacious bird. He would sit for hours at a time without uttering a sound, apparently engrossed in his own deep thoughts.

All the notes of the "Mopoke" are low and totally lacking in carrying qualities. The most curious of all was a low, growling sound; he would use this frequently at dusk, and it could easily be mistaken for the growling of a cat or a dog with a bone. I have since been told by a bushman that all young "Mopokes" growl in this manner. While uttering this sound the bird puffs itself out until it looks like a perfect ball of fluff. A cry of alarm rarely used is a deep, low "Too-*took,* too-*took.*" This note is not unlike the call of the Boobook Owl, but is only repeated once or twice at a time. A call evidently directed to another bird is "Tomb, t'tomb, t'tomb," uttered in a very low voice. A cry used if the bird is startled is a low, running "Too-too-too-too," uttered very quickly and repeated many times; it sounds almost like someone using a saw. While uttering this call the bird is always drawn to its fullest length, and, bending low, it sways in a most curious manner as it calls. The only additional note (other than its usual one) of which I have knowledge is uttered when the bird is annoyed—then it emits a strange, croaking sound that might easily be taken for the plaint of a frog.

So low-pitched is the voice of the "Mopoke" when uttering these cries, and so remarkably small is the carrying power, that one cannot wonder that for many years little seemed to be known about it. Considering the size of the bird, the calls carry a shorter distance than any other bird-notes of which I know.

The ordinary call, and that most used by our pet, was the well-known, low, monotonous "Oom, oom, oom," repeated sometimes an incredible number of times without a pause for breath. As he grew older he would potter about the garden paths in the evening, searching for insects; but about 8 o'clock he always wanted to go to sleep, and would waddle as awkwardly as a Penguin into the dining-room and grumble forlornly until given the small box of straw in which he always slept. Directly he was placed in this nest he would lie down and sleep until daylight. With the first hint of dawn he would shake himself like a puppy, and practise flying in and out of my bedroom window until about 7 o'clock, when he would grow dull and sleepy again.

It was not until the bird had lost all his soft down and become a full-feathered Frogmouth that he became really nocturnal. If alarmed in any way he would lengthen his body in an astonishing manner; with head held stiff and eyes narrowed to the merest slits, and every feather flattened against the skin, he bore but small resemblance to a bird, and might easily have been taken for a piece of stick. While in this attitude the "Mopoke" becomes so curiously rigid that it feels brittle enough to break. If annoyed (but not alarmed), this curious bird possessed the power to turn itself into a strange, round object; with every feather standing almost erect, wings lowered at the side, great beak wide open to show the yellow interior of the mouth, and eyes round and shining, the harmless "Mopoke" became so alarming in appearance that only the bravest cat or dog would dare to touch it.

If in the rain, our pet would raise his wings right over his head, as though to form a shelter. He loved to sit still in the evening with his mouth wide open, shutting it with a loud snap if a mosquito or any small insect flew in. He had a painful habit of flying on to a table in search of the small insects attracted by the light (none was too small for him), and, flapping his great wings, would put out the light! Also, he would create diversions (not always welcome), by flying in and out of windows at night—sitting on the bedposts and getting tangled up in the mosquito nets.

As he grew older he acquired a strange habit of eating his feathers. I wondered then if anything were lacking in his diet, until I happened to read an article by Mr. W. P. Pycraft in the *Illustrated London News* (October, 1925), in which he said: "The Great Crested Grebe, in place of loading its gizzard with stones for digestive purposes, uses instead its own feathers. The Dabchick behaves in like manner." Since reading that I have inclined to the belief that the "Mopoke" also is addicted to feather-eating as an aid to digestion.

Double-banded Dotterel.—While visiting recently a beach about 12 miles from Devonport, I came upon a party of a dozen Banded Dotterels (*Charadrius bicinctus*), a species which I have not seen for several seasons. They were picking about just above the ripple of the incoming tide, and allowed me to get fairly close, so that the difference in the markings was very noticeable. In some cases (probably females and young) these markings were so faint as to be hardly discernible, and in others both the black and chestnut bands were very distinct. This Dotterel appears on Tasmanian beaches only in winter and early spring, leaving us before the summer, apparently for New Zealand, where it is known to breed. Mr. T. H. Potts, the well-known observer of bird habits, recorded very early nesting of the Banded Dotterel: "August 2, 1856, saw a nest with two eggs, Rakaia River; September 1, 1855, nest with three eggs, Rakaia River."—H. STUART DOVE, West Devonport, Tasmania (June 5, 1927).

The "Button-grass" Parrot.

By CLIVE LORD, F.L.S., R.A.O.U., Hobart.

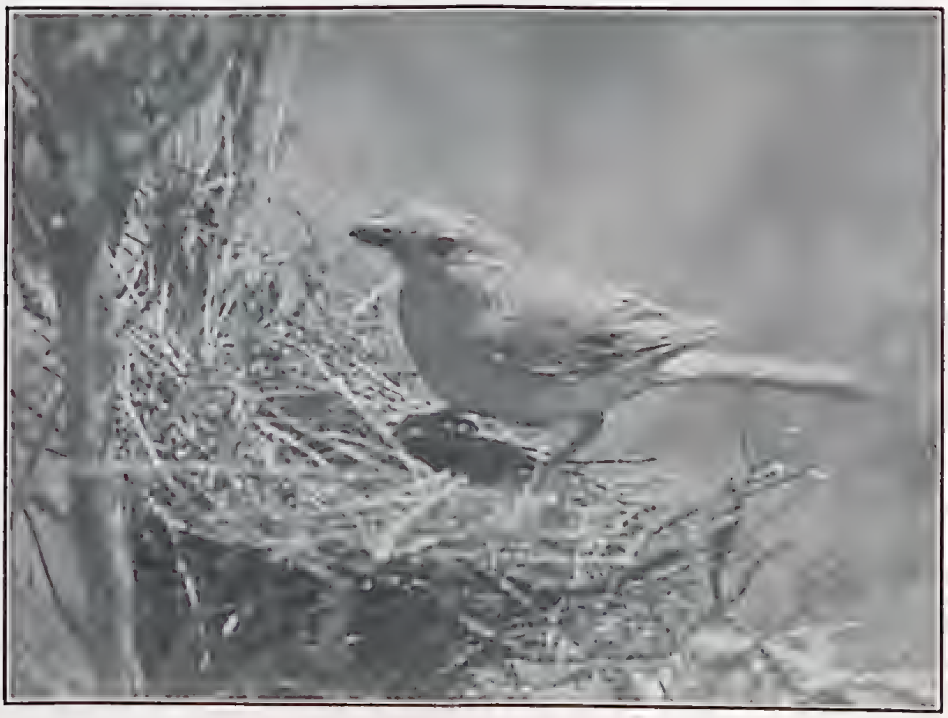
THE beautiful Ground-Parrot (*Pezoporus wallicus*) has become rare within the settled districts, but recently I had an opportunity of seeing numbers of this species in the rugged south-western portion of Tasmania.

As far as Tasmania is concerned the first detailed description is that of Labillardiere, the naturalist of the D'Entrecasteaux Expedition. Whilst the ships were anchored in Recherche Bay, southern Tasmania, the French explored the surrounding country, and on February 11, 1792, Labillardiere writes as follows (*Voyage in Search of La Perouse*):

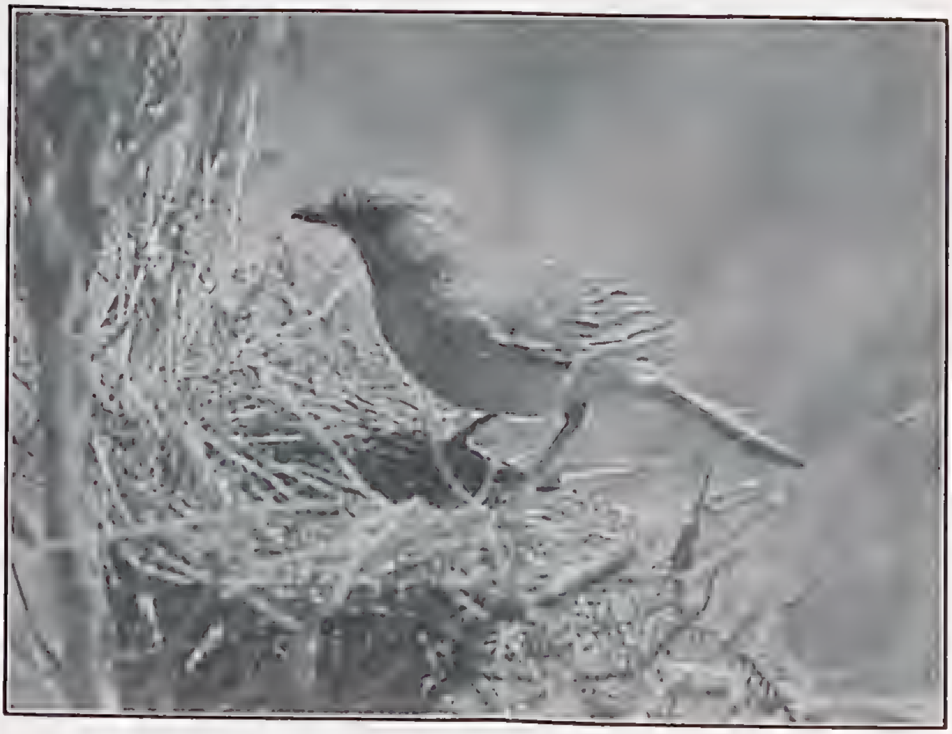
"As I advanced toward the south-west, I crossed some open spots where I killed a beautiful species of paroquet, which I distinguish by the name of the black-spotted paroquet of Diemen's Cape. I had already met with it in several other places, but always such as were low, and destitute of covert. Very different from the known species of the same genus, it does not perch, for I uniformly observed it rise from among the grass, on which it almost immediately settled again. The shape of the feet, which are furnished with very long claws but little curved, sufficiently indicate the manners of the bird. Its plumage is green, spotted with black; some of the spots being surrounded with little yellowish bands. The under part of the wings is ashen-grey, with a broad band of pale yellow. Under the belly the black and yellow predominate. The under feathers of the tail are remarkable for transverse bands, alternately black and pale yellow. A few small reddish feathers are observable at the base of the beak at the upper part of the superior mandible."

With the advance of settlement and settlers' cats, this species is becoming rare in most districts. The extensive south-west yet remains to be invaded, and it is here that one finds this bird in its true native state. Present indications point to the fact that the primitive quiet of this southern section will be interrupted in the near future, and if such is the case one of the first species to feel the effects will be *Pezoporus*. This fact cannot but be a matter of regret to all lovers of nature; but it is difficult to see how the species is to be preserved in any numbers.

The south-western portion of Tasmania consists to a large extent of rugged mountainous country, the predominating formations being conglomerate, quartzite and mica schist. Between the wind-swept hills run long valleys, the floors of which are covered with button-grass (*Mesomelæna*), broken here and there by patches of thick scrub. It is out of these



GILBERT WHISTLER (♀) AT NEST.



GILBERT WHISTLER (♂) AT NEST (NOTE DULL RED ON THROAT).

Photos. by Marc Cohn.

[illegible]

button-grass valleys or along the open coastal foothills that one meets with the Ground-Parrot in moderate abundance. In such localities as the coastal flats at Cox Bight or the long seven-mile plain running from Freney Lagoon to New Harbour Creek, *Pezoporus* is to be flushed in numbers, just as are the so-called "Button-grass Moths"—the bushmen's name for that dainty little midget the Emu-Wren (*Stipiturus malachurus*).

The local name for *P. wallicus*, "Button-grass Parrot,"* is fully justified, for it is amidst the button-grass that the species appears to spend most of its time and to make its home. It nests often at the foot of button-grass tussocks, and is therefore one of the first species to be exterminated when cats are introduced.

Bush fires have also to be considered, for the first act of prospectors and others when exploring the country is to fire the button-grass in order to give open going. Trappers also burn off with the object of enticing the game when the young shoots spring up after the burn. Immense areas are burnt out in this way, and if settlement spreads west not many years may be left during which the Grass-Parrot, Emu-Wrens and Grass-Birds (*Megalurus*) will flit across the tops of the tussocks in the numbers that they do at present.

Our trip to the south-west was filled with incident, but in spite of the charm and grandeur of the mountain scenery, the thousands of Ducks and Swans on the waterways of Port Davey, and the many other attractions of a like nature, ever among one's foremost thoughts will be the sight of the Grass-Parrots and their allies as they rose before us on the moors, tipped the tops of the buttons, and sank again within the deep piles of Nature's wonder-carpet of these western moors. Just as the general green colouration of the Button-grass Parrot is broken by gold and a rare touch of red, so are the moors, for every here and there rise the golden and red flowers of *Blandfordia* or the star-like blossoms of *Hewardia*.

Truly, this south-western region of Tasmania is a wonderland in many ways, and the avian gems of the button-grass plains seem but as gems to further gild a section of Nature's grandeur which so far has escaped defilement.

Stray Feathers.

Rare Bird Visitors to Bendigo.—A pair of Painted Honeyeaters (*Grantiella picta*) visited Bendigo (Victoria), on October 10, 1926. These were only noticed on the one day and apparently did not remain. One of this same species was also seen in the previous year on November 29, 1925.

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* In Queensland, *Pezoporus* was once known as the Swamp Parrot.—EDITOR.

The second strange occurrence was the appearance of four Rainbow-Birds (*Merops ornatus*) in the centre of the town. I have not observed them nearer than five miles before.

The third rarity was an Australian Ground-Thrush (*Oreocincla lunulata*); the first that I have ever seen or heard of in Bendigo. This was seen on November 9, 1926.

The fourth surprise was the finding of a pair of Gilbert Whistlers (*Pachycephala inornata*) on November 14, 1926. They built a nest and laid three eggs in a very thick bush of honey-myrtle (*Melaleuca gibbosa*). I secured several photographs (see illustration). The birds were robbed, but built and laid three eggs again in an *Acacia* which is known locally as "monkey-nut bush." The birds were still about several weeks later, but I was unable to ascertain whether they reared a family.*—MARC COHN, Bendigo, Victoria (March 15, 1927).

* * *

Colombo Crows Reach Australia.—A most interesting record of bird visitors to Australia is furnished by Mr. C. G. Hylton, manager at Broken Hill for the Zinc Corporation, Limited. It indicates how, in these days of quick transport, birds may find their way from one part of the world to another, and lead to modification of local forms. Here is Mr. Hylton's note, as contained in a letter to Dr. W. Macgillivray, C.F.A.O.U., of Broken Hill, under date October 14, 1926:

"During the trip of the s.s. *Naldera* from London to Australia—the boat left Tilbury Docks on August 27 and arrived in Adelaide on October 2—a matter of interest to ornithologists occurred. On leaving Colombo it was noticed that three Colombo Crows had settled on the main mast yard-arm of the ship, and remained there, with an occasional fly around the vessel, until nearing Fremantle, when one of the birds died. The other two, however, as soon as they were sufficiently near to land, left the vessel and flew ashore.

"What they lived on during the voyage from Colombo to Fremantle it is very difficult to say; possibly they managed to steal some of the meat which was thrown out for the cats, of which there were a good many on board. Otherwise, it is hard to realize that they lived for nine or ten days without food or water. The incident was of interest to most of the passengers, and a number of us daily looked at the yard-arm to see if the intruders still remained and enjoyed their trip to Australia.

"The above will perhaps explain the unexpected finding of birds in one part of the globe which really belong to another part many miles distant, from which place it seems impossible for them to have flown."

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* The Gilbert Whistler has been found breeding a good deal south of Bendigo on several occasions. Records of it nesting in the Maryborough district, about 40 miles south-west of Bendigo by air, are given in *The Emu*, Volume XVI, pp. 40-41 (1916).—EDITOR.

Do Plovers Ever Feed on the Wing?—At Kingston, near the mouth of the Derwent River, on March 15, in beautiful still weather, a flock of Spur-winged Plovers suddenly appeared to become much excited and commenced noisily wheeling to and fro over a rush-covered, marshy strip of land which follows the bend of the river. The birds kept strictly over the rush-covered area, though they might just as easily have flown over the meadow-land of the adjacent golf links. In a few moments a flock of Swifts appeared from the void, darting hither and thither about 100 feet above the Plovers. After about 15 minutes the Plovers became quiet and settled, and immediately afterwards the Swifts began to fly higher and wider and melted away. Assuming that some form of invertebrate life was rising numerously from the marsh, the eager and business-like way in which the Plovers patrolled the air, never straying to right or left, gave one the impression that they, as well as the Swifts, were fly-catching.—G. MURRAY ANDERSON, Raggal, Tasmania (April 12, 1927).

* * *

White-eyed Duck in Queensland.—I secured a specimen of this Duck (*Nyroca australis*) when out shooting, and was surprised to note it had no trace of white about the eye. I have never before seen a specimen of this Duck without a white eye.

Another thing I noted about this bird was, the down appeared to me to be darker than usual. I skinned the bird and sent it to the Museum, in case it may have been of interest, but blowflies got at it. Is it not unusual for this bird to be minus the white eye?—N. GEARY, Mount Pleasant, Dalby, Queensland (March 27, 1927).

* * *

Nests of the Musk Duck.—Some writers believe that Musk Ducks (*Biziura lobata*) always make their nests with an opening under the water. My experience differs in every instance. On September 18, 1923, I examined a half-dozen nests. The first was built on a limb of a broken tea-tree, just above the water. It was a mass of sticks and weeds lined with down, and took the form of an open nest, as of a tame goose. Tea-tree foliage was overhead about 10 feet up; otherwise it had no cover.

The next five nests were all made in coarse grass, locally termed "thatch grass," as haystacks were always thatched with it on Hindmarsh Island in the early days. The leaves were well interwoven above the nest and a side-entrance was fairly well concealed. The water was 2 feet deep around the nests, so that the Ducks could dive when out of their nests.

Most nests contained two eggs of a greenish tinge; the others were more yellowish. One nest contained one egg only, and this had a very noticeable splash of gold. I have found a nest with six eggs and presume it a combination clutch.—H. H. NEWELL, Hindmarsh Island, South Australia (May 9, 1927).

* * *

Birds Breeding Out of Season.—On March 6, 1927, I strolled through the bush about two miles from Bendigo with the object of ascertaining whether the Wood-Swallows had migrated. I was very surprised to find a nest of the Yellow-tufted Honeyeater (*Meliphaga melanops*) containing two eggs.

Mr. Hector Taylor and I went out on March 13, 1927, with our cameras, and while he was photographing I looked round and found six more nests of the same species, some with young and some with eggs. In another paddock one more nest was found containing two eggs on March 14, 1927. The clutch in every case was two. I also observed a pair of Diamond Firetails (*Zonæginthus guttatus*) carrying nesting material to the top of a very tall ironbark tree.

I would be pleased to hear from anyone who has found these or any other birds nesting so late as March in this year or previous years.* The long summer evidently upset the birds and plants, because the golden wattle (*Acacia pycnantha*) and waxflower (*Eriostemon*) are in bud, and a prickly *Acacia* that is usually the first to flower in the spring is in full bloom now.—MARC COHN, Bendigo, Victoria (March 15, 1927).

* * *

Crows in Western N.S.W.—The drought which still prevails throughout western New South Wales has sent great numbers of Crows into the outskirts of Broken Hill in search of food. When the grapes and peaches were ripening, *Corvus bennetti* took a share of them; and they are still in constant attendance at school grounds after the children's lunch-hour, seeking scraps. There are thousands of these birds, both Ravens and Short-bills, about our abattoirs all day and every day, and they are a great help to the local authorities in clearing up all waste material and fly larvæ. During the week-end there is no killing, and it is a rare sight to see the numbers that await the first of the blood to run on Monday mornings after their two-days' fast.

Mathews places very little importance on the colouring of the irides. However, it is a matter of age with Ravens and Short-bills. The former have bluish-brown irides till the thirteenth month, when they change at once with the moult to white and always remain so. All adult Ravens have white eyes. The Short-bills, however, take two years to change. That is as far as my investigations have gone. Adults always have white irides.—W. MACGILLIVRAY, Broken Hill, N.S.W. (May 20, 1927).

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* Early in May, 1921, when re-visiting the Maryborough district (about 40 miles south-west of Bendigo), I found several pairs of Yellow-tufted Honeyeaters breeding, and heard of other species of birds that were nesting out of season.—A.H.C.

* * *

Summer Visitors.—The first Spine-tailed Swifts (*Hirundapus caudacuta*) seen in this district for three years, made their appearance on February 4 this year—one pair only, between 2 and 3 o'clock in the afternoon, heading north-west against a strong wind and heavy showers. They flew at a height of perhaps 200 feet. Several more, on the evening of February 8, near sunset, were making to the north-west, with long intervals between the individuals; wind was W.S.W., strong, weather gradually clearing after a heavy blow. The height of the flight was from about 50 feet (the lowest bird) to 300 feet or so. A clear, cold night followed, with frosty air in early morning. On February 26 more Swifts were seen, heading north-west, while one or two individuals circled south. Evening fine, wind light from north-west; next day also fine; after that wind and rain.

All Swallows (Welcome, Tree, and Wood) seem to have left us this autumn by end of March. The only Cuckoos noted after that date were two or three of the Fantailed species, which usually winter here. Of Pipits, none was seen after end of March until May 9, when a pair in spruce plumage suddenly appeared by the wayside. On May 28, after a southerly blizzard, with heavy snowfall on the mountains, a Pipit flitted across the road, seemingly unperturbed by the Antarctic disturbance.—H. STUART DOVE, West Devonport, Tasmania (June 1, 1927).

* * *

The Black Swan (*Chenopis atrata*).—These beautiful birds are not nearly so numerous in this district now as in years gone by, when thousands took possession of various mud-flats to feed on the various river-weeds. "Sportsmen" then would take advantage of a strong south-west wind in the evening, when mob after mob of Swans would fly past southern points on Hindmarsh Island. The breeze kept them low when weathering these points, so that they were often in easy gun-shot, and residents would fill their larder. Adelaide visitors often refused Swan for dinner, but were later tricked by being asked if they would care for a bit of goose. And when asked how they enjoyed the goose they would say it was good!

Having a lifetime of experience among Swans, I venture to say the noise made by the birds on rising from the water is caused by their wings. The wings splash up the water, as can easily be seen when one is near enough. I have been in many a chase after a wounded Swan, and have seen at close quarters how the wings beat the water and heard the sound they make. No doubt some little noise is made by the feet.

The nesting-places in the Coorong are to my idea rather too exposed. Perhaps if some of the islands were planted with marrim grass or reedy grass it would be the means of saving many a nest. Crows have played havoc with many of the eggs in scores of nests through these being too open. The reedy patches on the mainland have been made unsafe since the fox has made such progress. No doubt bird-lovers will do something to have the islands in the Coorong made more suitable for nesting homes of Swans if someone will only take the matter up seriously.

Of many nests examined the highest number of eggs in one clutch was nine. The most exposed nest seen was on a stony reef, about a half-chain out from any rushes; this nest contained two fresh eggs.—H. H. Newell, Hindmarsh Island, South Australia (May 7, 1927).

* * *

Wagtails and Cows.—I have learned recently of two instances in which cows gently resented the attentions of Wagtails, which dance about the animals' noses in order to snap up insects disturbed by the warm breath. Here is the more interesting of the two cases, as related by a lad in Victoria:

"One day, while I was watching our cow graze on the grass, a little Wagtail flew down and kept hopping about her mouth. The animal stood it for a while; then, to my surprise, she gently picked up the Wagtail with her mouth, and put him to one side. The Wagtail was not satisfied with that. He hopped to the front of her mouth again. Then the cow gently picked up the bird again, but did not put him alongside her. She walked about 25 to 30 yards from where she was feeding, and put the Wagtail down. Then the cow returned to the place where she was at first. The Wagtail then flew off. Perhaps he realized that the cow didn't want him to be playing around her mouth."—A. H. Chisholm, Sydney (May 15, 1927).

* * *

Swan River Birds.—In regard to my taking a specimen of the Oriental Dotterel (*Charadrius veredus*) near Perth, which I considered in my paper on "New Records for the Swan River District," in the last *Emu,* as constituting the first record for the south-west, Mr. F. R. Bradshaw, R.A.O.U., of Tambellup, informs me that in November, 1924, he noted a flock of about 100 of these waders at a salt lake near Tambellup. Four birds were secured and proved to be immature Oriental Dotterels. In the Checklist the distribution of this species as set out specifically excludes the south-west of this State, a reference being made to its general rarity in the rest of southern Australia. The lack of records from this side of the continent may be accounted for by the fewness of resident observers, and it may be shown in the future that there is no disparity in the occurrence of this northern wader, east and west.

I greatly regret that my record of the Grey-rumped Sandpiper (*Tringa brevipes*) is erroneous and must be deleted from the list. I said that a specimen was in the W.A. Museum, collected at Kelmscott. It is so stated in the index of the collections, but I find now that the skin entered as such is really identical with the Wood Sandpiper (*Tringa glareola*), already recorded by Mr. Alexander.—D. L. Serventy, Perth (June 1, 1927).

* * *

Log-runners (*Orthonyx temmincki*) **south of Sydney.**—On February 17 last, in the company of Miss Doreen Hordern, I was exploring what was to me an unexpected treasure-house, the scrubs that line the slopes of Macquarie Pass. We suddenly heard a loud alarm note and sudden quail-like "churr" of wings, and I was almost certain there was an *Orthonyx* about, though not well acquainted with the bird. Five minutes later, sitting near a stream, we again heard the note on the hillside above us. This time it was repeated and answered, and we had a regular concert from two birds coming down the hill. In a few minutes a male *Orthonyx* came down to the stream, not 10 feet from where we sat, and proceeded to bathe himself in a pool of water, an operation that lasted two or three minutes. Then his mate came down and did the same thing. Afterwards, we watched them for a quarter of an hour or more, feeding among fallen leaves and constantly uttering their loud notes, particularly at any movement we made. It was a pleasant surprise to find them there, as I knew they had not been seen recently in National Park.* It is a magnificent piece of scrub where we saw these birds—the "old-fashioned" type, where the trees meet overhead, and there is a soft carpet of leaves for the explorer to walk on, and no undergrowth to impede him. It is sad to think that the new Port Kembla-Moss Vale railway will probably wind its destructive way through the heart of these beautiful scrubs, and another bird sanctuary will have "gone west" under the wheels of progress.—B. C. J. Bettington, Merriwa, N.S.W. (May 20, 1927).

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* North gives several records of the Spine-tailed Log-runner in the Illawarra scrubs, about 50 miles south of Sydney. Curiously, however, they do not occur in the scrubs of National Park, 25 miles south of Sydney, where the chief ground-birds are the Lyre-Bird and Pilot-Birds. It would appear that *Orthonyx* has a distributional break of well over 100 miles from the north to the south of Sydney, and peters out in the vicinity of Macquarie Pass.—Editor.

From Magazines.

Nesting of Flame-breasted Robins.—Concerning these dainty birds, whose movements and nesting habits have long been the subject of discussion, Mr. T. H. Tregellas writes as follows in the Melbourne *Argus* of April 1, 1927:

"You will recollect a discussion some years ago about the nesting of Flame-breasted Robins, when it was stated that they nested in Tasmania and the adjacent islands. I said at the time that I had frequently found them nesting at Selby and Belgrave at all heights, from 3 feet to 40 feet from the ground, and that it was a common occurrence to find several nests in one day. At Christmas time I spent a few days at Donna Buang and Ben Cairn, and along the motor road connecting the two places the Flame-breasts were easily the most numerous bird. They were literally in hundreds, and were nesting all along the top of the range. Eggs and young could be found anywhere, and the last nest I saw was on the roadside, about a hundred yards from the lookout, and about 3 feet from the ground."

* * *

Wanderers Return.—E. C. Green, of Thargomindah, in the south-west of Queensland, writes as follows in the *Boy's Weekly* (Sydney):

"Beyond our home lies a salt water lake. One day, while picnicking on this lake, we discovered a Sea-Gull's nest, and in it were two young Sea-Gulls. They are beautiful when they are young, covered with grey down. We took them home and reared them. One bird was a male and the other a female, so we called them Jack and Jill. Jack was the bigger bird of the two. We had them for about eighteen months and one night, after a storm of rain, Jill disappeared. Although we searched for days, we could not find the bird. Jack also missed his mate, and he used to wander away from the house and into the long grass in search of her. Seven or eight months after Jill's disappearance, we were surprised one morning to discover that Jack had also disappeared. He stayed away for about six months. While we were seated at breakfast one morning we heard a familiar noise outside and went out to discover that Jack and Jill had returned to their old home. They are still here, and are just as tame as ever."

* * *

The Rare Ground-Parrot (*Pezoporus*).—Mr. Donald Macdonald, Honorary Member R.A.O.U., writes in the Melbourne *Argus* of June 3:

"A Parrot which was picked up at the forestry plantation near Port Campbell and died soon afterwards was the beautiful and now somewhat rare Ground or Swamp Parrot. The basis of the plumage is emerald green, finely barred all over with black and yellow. On the forehead is a small patch of red. This Parrot was fairly common in the early days, especially about the swamps of the Mordialloc and Carrum district, and Wheelwright refers to it in his 'Bush Wanderings.' I doubt if there is now a Ground-Parrot left in the whole of the Mornington Peninsula, so it is a pleasure to find that some still survive about Port Campbell and Curdie's Inlet. These Parrots live and nest entirely on the ground, and one thing which may have led to their disappearance is that a good quail dog invariably sets them.

"While thanking a woman reader at Port Campbell for sending a dead Ground-Parrot for examination, I wish to correct a wrong impression. She mentions that when there was a reference to a similar bird being seen in the locality some time ago I wrote to a resident asking him to get me a specimen. There may have been some confusion about names, but I have never asked anyone to shoot for me a bird of any kind, not to mention one so rare that it is threatened with extinction. The 'interests of science' are sometimes pleaded in excuse for such an act, but neither science nor any other interest is served by killing rare birds, especially when there is no doubt whatever as to their identity."

* * *

Birds, Frog, Snake, and Boys.—A remarkable little tale told by Albert Long, Baree, Mt. Morgan line, Queensland, in a Sydney journal, relates that a frog ate a bird's eggs, a snake ate the frog, and the boys killed the snake, cut it open, then opened the frog, and recovered the eggs:

"One day, when my mate and I were out in the bush, we heard a Kingfisher singing out as though it was hurt. We went over to where it was. As we drew near we saw a hole in a small bank. We sat down under a tree about 8 feet away and watched very carefully. In about two minutes the Kingfisher flew away and came back with his mate. They sat on the bough for a while, and then the male bird flew down to the nest. It gave a signal to the hen, which flew down also. The male bird went into the nest and did not come out for a while. We waited for a while, and then, to our surprise, the male hunted out a frog. The frog hopped into the grass, and a brown snake grabbed him. I killed the snake and skinned him. We got the frog out. I cut the frog open, and inside him lay two Kingfisher's eggs."

Birds and Children.—The following article, written by Mr. J. D. Jennings, R.A.O.U., of Frankston, Victoria, is reprinted (by request) from the Melbourne *Age*. Mr. Jennings is a strong advocate for a "Bird Sunday," which proposal, it may be remembered, was mentioned at the Federal conference on bird conservation held in Melbourne in 1908. Sir John Forrest (afterwards Lord Forrest) then remarked that he was "strongly in favour of giving the birds a day of rest."

Mr. Jennings writes as follows:

Nature study as a subject of school work has steadily grown in importance, and the schools are turning out large numbers of children whose ability to observe closely, to experiment, and to draw correct conclusions has been so well developed that such of them as may engage in our chief primary industry will be in a position to grapple intelligently with the many diseases and insect pests incidental to the lot of the man upon the land.

The study of birds, their habits and their foods is one branch of this nature study, and the Education Department, recognizing the immense economic value of birds to the primary producer, instituted in 1909 Bird Day as such a glorification of our feathered friends as to attract the attention of adults, in whose education birds, as man's co-workers, had received no recognition.

This admirable movement has achieved much. It has created a "bird-conscience" in our boys. As boys my compeers regarded birds as things to develop our skill in stone-throwing, and to provide us with beautiful collections of eggs. True, we had the dawn of some conscience, for, in our band of slayers, I never once knew a boy to kill a robin redbreast. It had been made sacrosanct by the poems in our school books. In those days nearly every boy carried the deadly "shanghai" and a pocket of carefully-selected pebbles. and he was accounted great who could show the most nicks on his "shanghai prong," each cut indicating one bird killed. Now, what a contrast we have! He is accounted great who can invite his mates to his house and, at his magic call, bring wild birds to partake of his hospitality—to perch upon his arm and eat from his palm—to hold a worm, the while a yellow robin breaks dainty pieces from it. The doubting Thomas says, "Rubbish!" Well, here are photographs. Behold these six honey-eaters feeding from that abnormal-looking human hand. Look at that huge human finger stroking the robin sitting on her eggs!

The gospel of Bird Day, however, does not reach all boys. During school vacations the deadly pea-rifle is at work, and the birds, in many cases trained to confidence by the local boys, fall easy victims to its destructiveness. These boys are not young savages. They are fine fellows, but they know not what they do. Further, the gospel of Bird Day does not reach all our womenfolk, so, through ignorance, they become the accomplices of fiendish plume hunters. I quote from our noted birdman, Dr. Leach: "Now come those beautiful birds, the egrets. Man's cupidity and selfishness and woman's desire for ornament seem to have doomed these birds to total extermination, for the plume trade, which is responsible for some of the 'most abominable cruelty practised in the animal world,' is a war of extermination. Egrets are shy, and are approachable only in the breeding season. At that time they are, in obedience to parental instincts, brave in defence of their young. It is then that the plume hunters visit the rookeries and shoot the parents, leaving the helpless, almost fully-fledged young to die in the nest. And all for what? Could anyone who has seen the devastated nests, with the famished bodies of the fledglings rotting in the sun, ever take pleasure in egret plumes decking the head of a sister or wife? The extent of this trade is appalling. At one plume sale held in London on 4th August, 1909, the breeding plumes of 24,000 birds were offered for sale. Think of it! The slow starvation of 40,000 nestlings, the death of 64,000 birds to provide the plumes for one day's sale!"

Years ago, in the Melbourne Athenæum, I attended a farewell to an old college-mate, who had been recently ordained, and was about to depart to the Roper River as a missionary. One of the speakers, describing native life in the Territory, told of a trooper who, having captured a native charged with murder, fixed a handcuff chain around the man's wrist and attached the other end to his saddle. The trooper then mounted and the prisoner had to walk beside the horse. A kind-looking old lady, sitting in front of me, called out, "Shame! Shame!" As she did so a triple tuft of egret-plumes trembled on her hat! The good woman was ignorant of her own far greater shame. This incident gave me an idea. I decided that I would write a hymn, have it set to music, and try to get it sung in the churches on one appointed Sunday in the year, a Bird Sunday, and thus create a bird-conscience in our women. I append the hymn in the hope that it will be a challenge to someone to write a better one:

A BIRD HYMN.

Birds of the sunlit air, songsters so blithe and fair
Sweetness and gladness abound in your lay,
Joyfully twittering, plumage all glittering,
God, in Thy goodness, protect them, we pray.

Oh, may they multiply, lovingly fostered by
Man, their companion and comrade in strife,
Singing their songs so free, helping him cheerily,
Faithful co-workers and allies for life.

Warriors of the wing, great is the joy you bring,
Guarding and bright'ning our Austral land fair;
Faithful we'll be and true, and ever loving you,
Pray the good God may take you in His care.

Reviews.

THE WONDERFUL PLATYPUS.

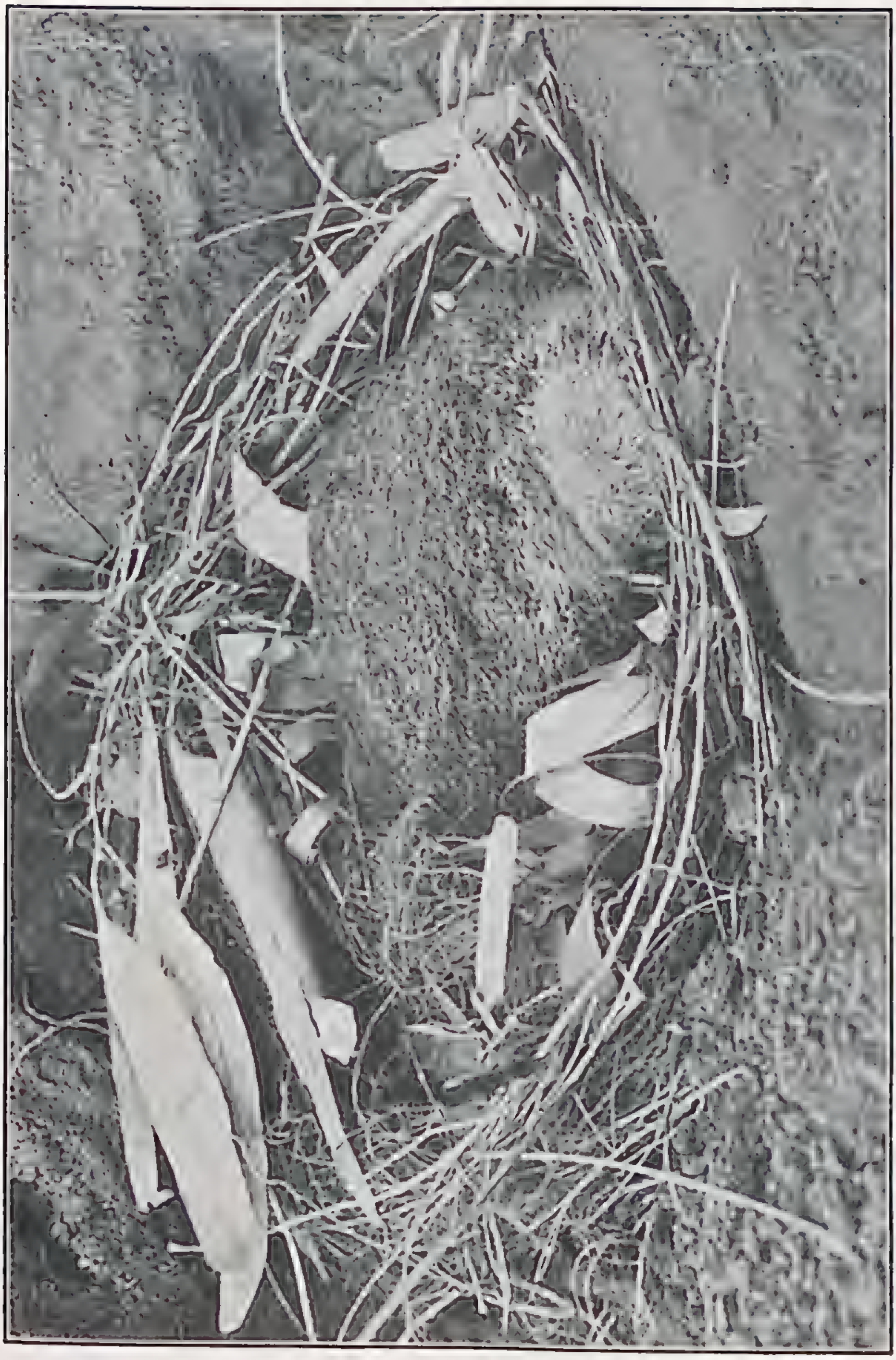
"The Platypus; its Discovery, Zoological Position, Form and Characteristics, Habits, Life History, etc." By Harry Burrell, R.A.O.U.; Sydney, Angus and Robertson.

Mr. Harry Burrell, a member of the R.A.O.U. of long standing, has written many shrewd observations on birds, but as a mammalogist he has gone much further; for several years he has been, as he still is, the foremost authority in the world on the general characteristics and behaviour of Australia's remarkable monotreme, the platypus, *Ornithorhynchus anatinus.* Accordingly, this long-awaited volume is packed with interesting matter, and the patriotism of Angus and Robertson has caused both letterpress and illustrations to be produced in a thoroughly pleasing and dignified manner. It is a book that age will not wither—a book that must have a place in naturalists' libraries at all times, in all countries.

Many zoologists have written books on the mammals or birds of various countries; how many could execute a volume of over 200 pages in relation to a single species? Indeed, there are very few mammals of sufficient interest—so anomalous, so compact of the mammalian story of the ages—to warrant the detailed treatment here given to the platypus, Australia's ancient mammal, which is distinctly one of the most curious creatures that ever breathed the breath of life.

The platypus and the echidna (spiny ant-eater or native porcupine) are monotremes, and the only creatures of their kind in the world. Everyone knows the story of the small boy who, seeing a giraffe for the first time, announced gravely: "I don't believe it!" This yarn had its counterpart long ago when scientists in London first saw a cabinet specimen of the Australian "water-mole" or duck-bill. They simply refused to believe it. They suspected a hoax! But in good time the "fake" became established as a very sentient fact. Then began the controversy as to the creature's method of reproduction. Possibly there are many people who can remember still the shout that went up in scientific circles when in 1884 Caldwell reported his discovery that the platypus actually laid eggs. Staid zoologists were amazed. How dare any mere mammal so upset all preconceived ideas that its young were born alive, or that it produced eggs which hatched within the parent body? Never was there so disconcerting a creature!

Broadly speaking, nothing much beyond the salient facts affecting the platypus have been touched on in earlier books. The detailed life-story of the oddity has been left for Mr. Burrell to unravel. He has done this in very distinctive and



BROODING PLATYPUS ON NEST.

Photo. by H. Burrell.

thorough fashion, possible only in the case of a keen observer, relentlessly dogged, and favoured by the god of opportunity. The remarkable skill of the platypus in excavating its burrow and building a nest, the curious manner in which two (or even three) eggs are joined, the growth of the quaint young, the function of the poisonous spur in the male, the strength and amazing agility of adults, and, above all, the "sixth sense" of the ancient creature—all these points are discussed with such thoroughness and suavity as to constitute a unique monograph.

A brilliant lot of photographs enhance the value of a book that must always stand to the credit of Messrs. Angus and Robertson, as well as to the resourceful author.—A.H.C.

BIRDS AND MAN.

"Birds in England." By E. M. Nicholson; London, Chapman and Hall.

This book treats of birds from the point of view of their protection and of bird-life in general as it affects and is affected by man. The chapters on "The Importance of Birds," "The Balance of Birds," "Birds and the Modern World" and the "Sanctuary System" provide much food for thought for anyone (no matter to what country he may belong) who is considering questions of economic ornithology, such for example as the effects of the protection or non-protection of certain species.

In England, an old country where bird-observations have been recorded for a century or two, some definite results of observations have been ascertained, such as could not yet be obtained in a "young" country like Australia. For instance, of England's noble birds of prey, there are some species which within recent years have become extinct. Ruthless persecution and the practice of collecting have, it is said, been the causes of this lamentable loss. Mr. Nicholson discusses bird protection fully; he has collected much valuable information on the subject, and he gives his views in forcible language independent of both collectors and orthodox protectionists. Of the collector who collects as a hobby, simply for the sake of collecting something, he writes:

> "A certain number of men never grow up completely—the streak of childishness which still persists may take the form of running model railways or kite-flying or sailing toy yachts or stamp-collecting. Egg-collecting with the great majority of its devotees is precisely on a par with these as a hobby, but it differs from them all in being destructive and therefore unjustifiable. The pursuit of the most rare is an evil inherent in all collecting. What is feasible is to restrict the field of operations to postage stamps and cigarette cards and such other branches of the art as do not involve the wholesale destruction of our irreplaceable wild life.
>
> "There are, of course, other collectors in this country—perhaps as many as half a dozen of them—who are working for different ends and whose collecting is of some scientific value. They ought not to be

penalized—if the geographical races and migrations of a great number of our species are to be investigated it is necessary that specimens should be shot.

"There is hardly a science of its secondary importance which has had so much time and money expended on it and so many hundreds of thousands of living creatures sacrificed to its demands as oology; there is probably none at all which has so few results to show. We see that eggs laid in holes are white; that Plovers and similar birds have a very constant clutch of four pear-shaped eggs; that there are certain well-defined types of eggs which have been enumerated as smooth, dull, glossy, greasy, porcellaneous, chalky-filmed and granulated; that waders and game-birds usually lay eggs proportionately much larger than passerines, and Cuckoos proportionately smaller, and so on. All this is elementary—the Gilbert White stage of research—but oologists have not yet progressed beyond it. With the explanation of the factors which govern the colouration of eggs and their size they have made practically no headway, though the far more intricate development of the chick within has long ago been exhaustively worked out by embryology. With the bulk of collectors science is no more than a stalking-horse. They have contributed little more to our knowledge than stamp-collectors, who are, at least, harmless."

Mr. Nicholson says that the advice of W. H. Hudson should be followed more loyally, *viz.*, that more attention should be given to propaganda in the schools, and that collecting should be stopped by legislation; otherwise, the rarer birds will remain handfuls of fugitives.

The book contains some interesting chapters on famous British ornithologists—the "pioneers," Turner, Browne, Willughby and Ray; "the principal founders of field ornithology and the love of birds in England," George Montague and Gilbert White; and, above all, the "patron saint of bird protection and indisputably the greatest bird lover of our times," W. H. Hudson. The latter is described as a "world naturalist and a magnificent writer on England, who gave a great part of his life to the task of awakening the people to the immeasurable losses which were being inflicted on the avifauna by selfishness and greed. . . Coming into the field of British ornithology at a time when protection had hardly a competent ornithologist among its supporters, Hudson lived to see the wheel turn full circle, so that now it is collecting which is on the defensive."—H. Wolstenholme.

A "NEW" ORNITHOLOGIST.

"How Birds Live." By E. M. Nicholson; London, Williams and Norgate.

It is a curious thing that, whereas Mr. Nicholson's first book (reviewed above) is handsomely produced and finely illustrated with woodcuts, this second volume, following early, is turned out in modest fashion and lacks illustrations. This point would be scarcely worthy of mention if *How Birds Live* were a casual collection of youthful essays. As a fact, it is one of the most stimulating and provocative books on birds accomplished during the present century. Mr. Nicholson must not be perturbed if informed that Australians had not heard of him outside of these two volumes; he has his revenge in the assurance, now tendered, that we bow to him as one of the clearest and most independent thinkers in ornithology today. Although soundly read in British bird-study and general literature, he has kept sanely aloof from the stale formulas and misty perspectives that hold too many ornithologists at the dead level of mediocrity, and he is developing an authentic voice already calculated to make dry bones rattle. And yet, according to report, this challenging author is a mere youth of 19 or 20 years, still under the wing of Julian Huxley at Oxford! A modern David, facing the Goliath of semi-scientific conservatism, with a typewriter for sling and a slim volume for stone!

It is not to be assumed, of course, that *How Birds Live* is the last word on how birds live. The little book contains inequalities of sorts and suggestions that lose much of their force when applied to a wider test than Britain can afford. Indeed, this insularity is at once the weakness and strength of the book. Mr. Nicholson has done well to avoid the blunders of authors who dogmatize concerning (say) the Bower-Birds and Lyre-Birds of Australia without really knowing anything about them; but in limiting himself to the birds of Britain he has limited the force of some of his theories. Also, there are times when the arrogance of youth leads him astray; he falls a victim then to the didacticism which he scarifies in others. But these slips are natural enough—as inevitable, perhaps, as the occasional harshness in the resonant morning voice of the Grey Thrush.

Bird ecology is trenchantly discussed in the early portion of this book. The nature of the struggle for existence among birds, mortality among birds, the function of birds of prey, and the fact that mortality is sometimes higher in residents than in migrants—these and kindred points are traversed prior to a general examination of Howard's theory of territory in bird-life. Howard advances cases in which the question of securing food is subordinate to the question of securing a station suitable for reproduction. Nicholson disagrees; he holds that the necessity of securing food is paramount, and can never be subordinated to any other consideration. Generally, however, he adopts Howard's views respecting territory, and goes so far as to postulate that territorial influences affect the whole life and behaviour of birds, even developing or modifying songs and calls. When Mr. Nicholson has gained more field experience (outside Britain for preference), he may modify his views in this respect; he may come to believe that his view of bird-song has been too sternly economic. Tennyson was not an ornithologist, perhaps, but he knew what he knew in writing, "By my life, these birds have joyous thoughts!" Yet Mr. Nicholson would have us believe that what we regard as bird-song is prompted, not by *joie de vivre,* but by selfish utility, the urge to warn other birds away from the territory of the singer. In Australia, Magpies and Butcher-Birds, Grey Thrushes and Honeyeaters laugh such a theory to scorn by carolling joyously while doing nothing in particular in autumn and winter. No one denies now the powerful influence of territory on bird-life, but in examining this influence it is not wise to subordinate unduly the fact that we are dealing with creatures compact of nervous energy, which may not "have sense of why they sing," which may not sing, "like poets, from the vanity of song," but which certainly do joy in their singing—whether that "singing" be the rich canticle of the Rufous Whistler, the ear-wracking splutter of the Wattle-Birds, or the semi-human hilarity of the Kookaburra. To Mr. Nicholson the only true bird-songs are "sub-songs"—what some of us in Australia term "whisper-songs." Possibly there is a basis for this suggestion, but the general restriction is too rigid.

Mr. Nicholson discusses also courtship and display, "mobbing," fighting and play, and one or two other points. He has some arresting theories on migration, and he touches the fringe of the Cuckoo problem. It would seem, however, that there is little further to be accomplished in respect of Cuckoos in Britain just now; the necessity appears to be rather for a grouping and examination of observations on Cuckoos everywhere, and particularly in the ancient island known as Australia.

It is to be hoped that Mr. Nicholson will continue to make romance and reality meet in ornithology. We cannot afford to have such a fresh and vigorous mind buried in the byways of business life or even among skins in a museum.—A.H.C.

BIRDS OF SOUTH AUSTRALIA.

A second edition of the list of the *Birds of South Australia,* by J. Sutton (reprinted from the *South Australian Ornithologist*) has been published. This has been done for the purpose of making the scientific and vernacular names agree exactly with the names in the official R.A.O.U. Checklist.

It is pleasing to record that the new Checklist has been received by scientific bodies and ornithologists all over the Commonwealth with satisfaction that at last there is an authoritative list for all to follow. True, the trustees of the Australian Museum, Sydney, in their recently-issued bird post-cards, use the names of Mr. Gregory Mathews's multifarious genera and some novel vernacular names of their own; but for this the trustees alone appear to be responsible and not the bird-room of the Museum.

The new South Australian list places figures in parentheses after the vernacular names to indicate the consecutive number of the species in the official Checklist. There are sixteen species added that were not in the first edition. South Australia's recorded species now amount to 369, out of the total number found in the Commonwealth of 707.—H.W.

Obituary.

MR. H. L. WHITE.

With the death of Mr. Henry Luke White, R.A.O.U., C.F.A.O.U., which occurred at "Belltrees," Scone, on May 30, after a lingering illness, Australia lost one of its most notable figures, and ornithology in this country was robbed of its most distinguished patron.

Mr. White, who was born at Anambah (West Maitland) on May 9, 1860, was a son of the late Francis White, of Edinglassie Estate, Muswellbrook, and a grandson of James White, who came to Australia in 1825 as sheep manager of the Australian Agricultural Company at Port Stephens. He was educated at Calder House, Redfern, and Mr. Belcher's school, Goulburn. He studied for surveying, and passed his final examination in 1884. In 1887 he married a daughter of the late Mr. E. S. Ebsworth, of Bronte House, Waverley.

Mr. H. L. White was a most public-spirited man. He had been president of the Upper Hunter Shire Council since its inception, missing only two meetings in 20 years. For upwards of 35 years he was a member of the Pastures Protection Board, and for 40 years he was a member of the Upper Hunter Stock Board. He was a generous patron of local, public, and charitable and religious institutions and movements.

As a philatelist Mr. White won world-wide distinction. He was a Fellow of the Royal Philatelic Society of London. In 1897 he purchased the Queensland collection from Mr. E. D. E. van Weenen. He then became interested in specializing in the States of Australia. Mr. White gave magnificent collections to the trustees of the Public Library of New South Wales for incorporation in the Mitchell Library. In 1917 he presented his collection of New South Wales fiscal and postal stamps, considered by philatelists to be the most complete in the world, and at the time estimated to be worth £14,500. Its value has probably appreciated considerably since. In 1921 he made another gift to the library of his Queensland and Western Australian collections, and the three collections are now estimated to be worth £50,000.

As an ornithologist Mr. White also won world-wide renown. He was a member of the British Ornithologists' Union, and a corresponding fellow of the American Ornithologists' Union, besides being an honorary member and strong supporter of the R.A.O.U. His collection of Australian birds' eggs is the finest in the world. In 1917 he presented to the National Museum in Melbourne his priceless collection of over 8,000 skins of Australian birds. He gave £1,000 to the Royal Australasian Ornithologists' Union in furtherance of its scientific work, and he also presented to it a complete set of John Gould's famous *Birds of Australia,* valued at £500.

The name of H. L. White will live, of course, through the magnificent collections he has donated for public and semi-public use; it is commemorated also through the names *Amytornis whitei, Falcunculus whitei, Lacustroica whitei,* and at least a score of bird-names the owners of which are at present given sub-specific rank. Further, Mathews has used the name for more than one genus when dividing genera. The names of Mr. White's collectors, too, are freely applied to Australian birds, chiefly sub-species, which fact in itself is an indication of the value of the field work Mr. White was instrumental in having done. Indeed, the pages of *The Emu* would have been much less interesting for many years past without the contributions of men sent afield by H. L. White—among them F. L. Whitlock, S. W. Jackson, H. G. Barnard, W. McLennan, E. D. Frizelle, and J. P. Rogers.

The deceased gentleman is survived by Mrs. White, one son—Mr. Alfred Henry White, who was a noted Cambridge Blue—and two daughters—Mrs. W. P. Minell and Mrs. H. V. Hordern, of Nerida, Moss Vale. His brothers are Mr. Frank White, of Saumerex, Armidale, Mr. Arthur G. White, of Belltrees, and Mr. Victor M. White, of Roslyn Gardens, Sydney.

A full-page photograph of Mr. H. L. White appeared in *The Emu,* Vol. XVII, Plate 24 (January, 1918).

MR. R. S. ARCHER.

Mr. Robert Stubbs Archer, R.A.O.U., of "Gracemere," Rockhampton, Queensland, died on December 29, 1926, at the age of 68 years.

Although Mr. Archer would not have claimed to be an ornithologist, he took a keen interest in the protection of the birds in the Rockhampton district, and it was through his influence that the mere at Gracemere, with an area of country round it, was made a Bird Sanctuary and closely watched.

Those who took part in the 1924 Congress will remember the kindness and hospitality of Mr. and Mrs. Archer and family, when the charming old family home at Gracemere was visited by members of the R.A.O.U.

Robert Archer was a fine type of a very fine family who were the pioneers on the country that is now Rockhampton, but was then virgin forest and formed at the time part of New South Wales. Although of a retiring nature, long residence in the district—Gracemere had been his home for nearly fifty years—and a reputation for unvarying uprightness had drawn him into many local affairs. He was Chairman for very many years of the Rockhampton Harbour Board, and President of the Rockhampton Agricultural Society almost continuously since 1894, Chairman of the Local Board of Directors of the Mount Morgan Gold-mining Co., as also of the Rockhampton Branch of the Graziers' Association. He was, too, Patron of that active body, the Central Queensland Bird Protection Association.

His kindness of heart and consideration for others made him a wide circle of friends, by whom his loss will be greatly felt. It is pleasing to know, however, that Mr. Archer leaves behind those who will also carry on the family tradition at Gracemere.

MR. F. S. SHENSTONE.

Many members of the R.A.O.U. regretted to learn of the death of Mr. Fred. Salkeld Shenstone, of Sydney, which occurred on May 15. Although not a member of the Union, Mr. Shenstone, in his capacity of secretary of the publishing firm of Angus and Robertson, came into close contact with many members and with some aspects of the Union's work; and his death at the age of 51 was a distinct loss to ornithology.

MR. CLAUDE KINANE.

Many nature-lovers will regret the death of Mr. Claude Kinane, whose fine work in nature-photography attracted much attention years ago. As one of a party of young nature-students, who called themselves "The Woodlanders," and spent the week-ends in a hut at Olinda (Victoria) named after Thoreau's "Walden," Claude Kinane got some bird-pictures which have never since been equalled in Australia. He was the first to get pictures of the newly-hatched Cuckoo throwing its fellow-nestlings—some Blue Wrens—out of the nest, and no one has since succeeded in getting Cuckoo pictures at the same interesting stage. One might watch for a lifetime and then never have the luck to get that subject at the vital moment.

Notes and Comments.

Any member desirous of bringing forward important business for consideration at the next Annual General Meeting should note that notices of such business must be forwarded to the Honorary General Secretary not later than August 1.

Members are reminded that nominations for Council must be in the hands of the Honorary General Secretary not later than September 19. All nominations should be accompanied by the consent in writing of the candidates proposed.

* * *

The Annual Meeting of the Central Queensland Native Birds Protection Association (Rockhampton) was held on January 27, when a very healthy record of the year's work was presented. It was shown that new sanctuaries had been established, more honorary rangers appointed, and assistance given towards establishing similar associations in other centres. In touching on the question of Emus and prickly pear, the Committee's report suggested that the birds had been condemned on somewhat flimsy evidence, and expressed willingness to co-operate with the R.A.O.U. in securing a reprieve for these noble birds pending investigation into their food by men who understand the economic status of birds. The following officers were elected: Patron, Mr. R. G. McDowall; President, Mr. A. Boldeman; Vice-Presidents, Messrs. C. M. Rogers, J. Larcombe, J. Stapleton, A. R. Kirby, R. C. Boland, H. W. Withers, C. Barnard, D. McLaughlin, junr.; Committee, Messrs. G. Boldeman, G. Baxter, F. Brimacombe, C. Stone, J. Byril, J. Richter, H. F. Lamberton, C. Stimms, T. Gorle; Chairman of Committee, Mr. F. Lamberton; Auditor, Mr. F. Brimacombe; Honorary Secretary, Mr. P. V. Maloney.

* * *

Mr. H. Wolstenholme, R.A.O.U., of Sydney, is to be congratulated on having been made an Honorary Member of the London Natural History Society. This Society dates from 1858.

Council Meetings, R.A.O.U.

At a meeting on April 13, 1927, the Council expressed gratification at the response to its requests for reports from certain members as to the decrease in numbers of native birds. Several interesting letters have been received, and are being filed for use when questions of close seasons *et cetera* are under discussion. The Council will welcome reports from members suitably situated regarding the illegal destruction of native fauna or of the necessity for close seasons for certain species.

Consequent on a complaint from the Union that Penguins were being used on the Victorian coast as bait for crayfish, the Chief Inspector of Fisheries (Victoria) wrote stating that the practice did not exist. Some members were not inclined to accept this statement, and it was decided to suggest that a raid be organized to ascertain the class of bait used.

A report was received from Mr. G. H. Barker, State Secretary for Queensland, regarding the destruction of Emus in prickly pear areas. It was resolved to communicate to Mr. Barker the appreciation of the Council of his efforts to save these birds.

Dr. J. A. Leach and Mr. Z. Gray were appointed to represent the Union on a deputation to urge the extension of the Buffalo National Park, Victoria. It was decided that the Union should support other societies in a campaign against the destruction of sea-birds by waste oil.

The secretary of the Melbourne Bird Observers' Club communicated the desire of that body to be appointed a committee or representative of the Union under Article 26. Mr. Ross was asked to look into the legal aspect of the matter.

* * *

At a meeting held on May 11 a further communication was received from the Chief Inspector of Fisheries, stating that he had visited Phillip Island recently and had been unable to find any evidence that fishermen were using Penguins for bait, but that the fox was doing considerable damage amongst them. However, he was of opinion that certain Bass Straits Islands under Tasmanian control were raided by fishermen. It was decided to suggest further to the Department that crayfish pots should be licensed and numbered in order to secure more efficient control.

The Editor wrote calling attention to the excessive cost of reprints from the last volume of *The Emu.* The serious financial strain caused by the supply of authors' reprints had been discussed frequently by the Council and it was now agreed that the Editor be asked to discontinue the free supply. All present voted in favour of the motion and interstate members of Council have been invited to record their votes.

Consideration was given to the wording of an explanatory note regarding sub-generic names, which it has been decided to issue with the second edition of the Checklist. Two drafts are being submitted to members of Council.

A newspaper report of the wounding of birds at trap-shooting matches was dealt with, and it was resolved to bring the matter under the notice of the Society for the Prevention of Cruelty to Animals. Some members of the Council have declared themselves more than once as being opposed to the use of live birds for trap-shooting. However, the remarkable increase in the numbers of Starlings and other introduced species, which are driving our own birds from their accustomed haunts, is a serious matter, and it was felt that a decision should not be arrived at hastily. The views of members throughout the Commonwealth would assist the Council in this matter.

Mr. Arnold, secretary of the Melbourne Bird Observers' Club, attended the meeting, and was informed that the Council agreed to the affiliation of the Club as a branch of the R.A.O.U.

R.A.O.U. Congress, 1927, Western Australia.

For the second time in the history of the R.A.O.U., the Annual Congress and Camp-out will be held this year in the western State.

In 1920 a large number of members, representing every State in the Commonwealth, participated in the proceedings, and it is hoped that on the present occasion many more members may find it convenient to take this opportunity of becoming acquainted with the ornithology of the western side of Australia.

The date of the Congress has been amended from that published in the April *Emu* to four weeks later.

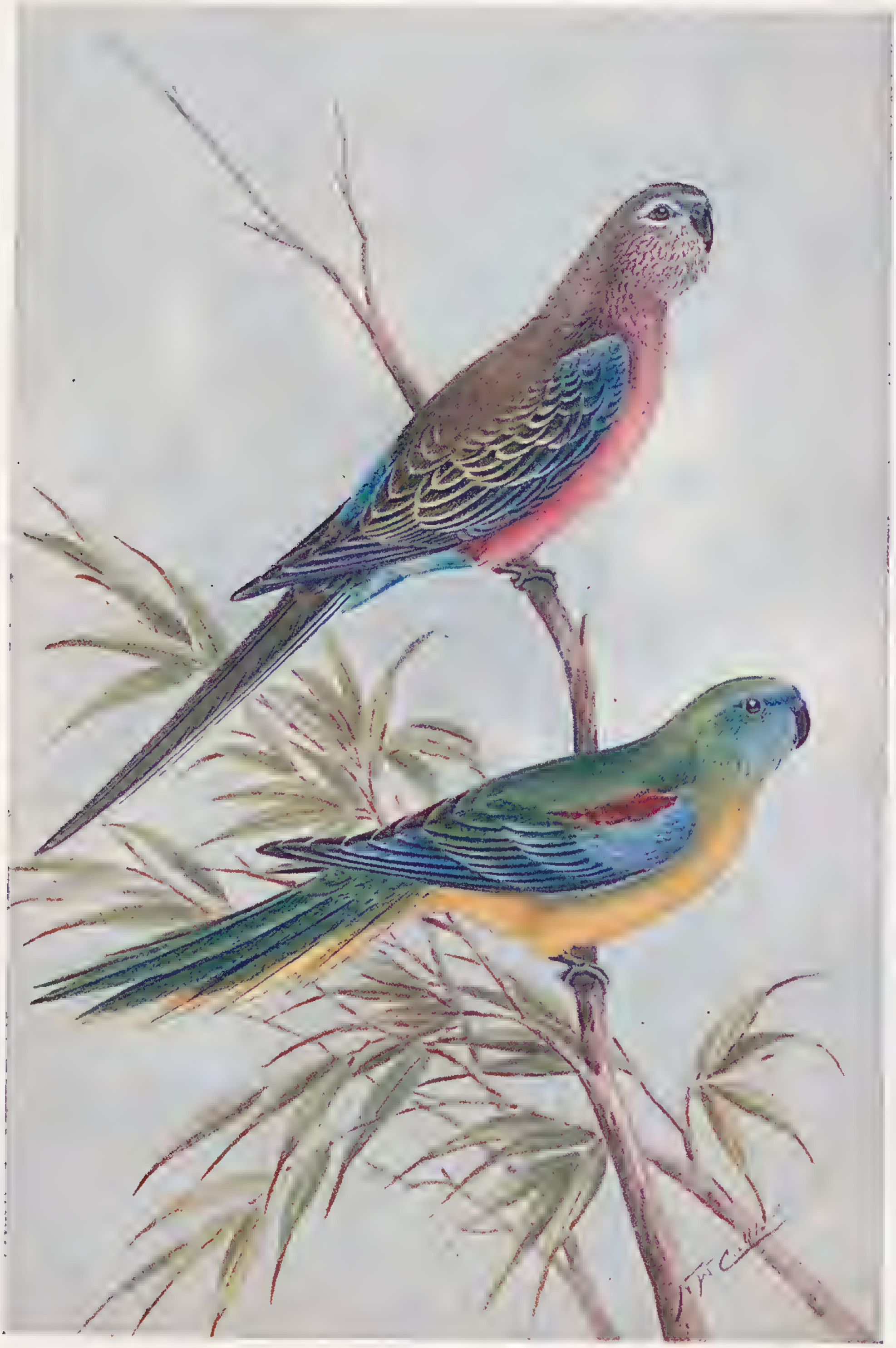
Conference will open at the W.A. Museum on October 18, delegates from the east arriving in Perth on the previous day, Monday, October 17. According to the new schedule, therefore, Sydney members will have to leave on October 12, and Melbourne and Adelaide members each a day later.

A reception by Mr. E. A. Le Souef and the Acclimatization Committee will be accorded the visitors at the Zoological Gardens on the afternoon of the day of arrival, and after 2½ days in session, the party will entrain for the camp, in the extreme south-west.

The camping site has been chosen on the western shore of Nornalup Inlet, at the Deep River. The country for many miles around is entirely virgin, and comprises big timber (including the giant karri and tingle-tingle), swamps, plains, and the many miles of inland waterway of Nornalup Inlet. Up to a few years ago settlement in this vast area had been negligible, but the active establishment of group settlements at many points will effect a radical change. The camp site, 50 miles from the head of the railway at Denmark, and about 70 miles from Pemberton, lies near the surveyed route of the proposed Pemberton-Denmark railway, the construction of which will bring new group settlements in the area. The proposed visit of the R.A.O.U. is therefore timely. The camp will extend from October 21 to 30.

It is important that members who contemplate being present inform the General Secretary as early as possible.

NATIONAL MUSEUM MELBOURNE



GRASS-PARROTS

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(*Upper*): ♂ Bourke Parrot, *Neophema bourki.*
(*Lower*): ♂ Turquoise Parrot, *Neophema pulchella.*

The Emu
OFFICIAL ORGAN OF THE
ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION

"Birds of a Feather."

VOL. XXVII] OCTOBER, 1927. [PART 2

The Charming Bourke Parrot.

By W. MACGILLIVRAY, M.D., C.F.A.O.U., Broken Hill, N.S.W.

(See Coloured Plate.)

THE Bourke Parrot (*Neophema bourki*) was first discovered in 1835 on the Bogan River by Sir Thomas L. Mitchell and named by him *Euphema bourkii.* This was in honour of Sir Richard Bourke, at that time Governor of New South Wales, and who had afforded Sir Thomas every encouragement and assistance in connection with his exploring expeditions. Sir Thomas published the bare name and locality only in the "List of Birds Deposited in the Australian Museum at Sydney," contained in Vol. 1 of Mitchell's *Australian Expeditions,* published in 1838. He published no description, nor is any note made of when or how the specimens were obtained. It was left for Gould to publish a full description of the bird, and to illustrate it, in his great work of 1841.

In 1845 Sturt, during his enforced stay at the Depôt in north-western New South Wales, makes reference to the Bourke Parrot as one of the species that remained with them throughout the dry winter, when all other birds had vanished. He also alludes to the crepuscular habits of this species:—"Keeping in the daytime in the barren bushes behind the camp and coming only to water. The approach of this little bird was intimated by a sharp, cutting noise in passing rapidly through the air, when it was so dark that no object could be seen distinctly, and they frequently struck against the tent-cords in consequence." Further, in his notes on *Falco subniger,* Sturt says:—"He was shot in some bushes behind the Depôt, where he had been spreading alarm amongst a flight of parroquets (*Euphema bourkii*)."

Specimens of this Parrot were collected by the explorer Gregory and deposited in the British Museum. No definite locality was specified, but they were probably taken in the north-west. Specimens have also been obtained in the Murchison district of Western Australia by C. G. Gibson and in Central Australia by S. A. White. K. H. Bennett found them in the scrub country east of the Darling River system.

West of the Darling, in New South Wales, I know of only one restricted locality where they are still to be found. Where Sturt noted so many there is none to-day. Between the Depôt Glen and Wilcannia they were trapped thirty years ago, but none is to be found now.

Unlike some other species of this genus, the Bourke Parrots are not migratory, so that any considerable alteration in their environment spelt their extermination. This alteration was brought about by the over-stocking of the country with sheep and cattle, followed by hordes of rabbits eating out all under-scrub, thinning out the scrub, and denuding the ground of its natural cover of dry grasses and herbage. Then cats were let lose all over the country to help kill the rabbits, and now the fox follows on to complete the work of destruction.

This charming Parrot is now only to be found in one limited locality. It was being trapped there to the point of extinction within the last few years, and was saved only by the timely death of the two bird-catchers best acquainted with its haunts and habits, and by the area in question being declared, at the request of the Barrier Field Naturalists' Club, as a sanctuary.

"Bourkes" are quiet, unobtrusive, and gentle little creatures who find their living in more or less open scrubs of the associated acacias—mulga (*Acacia aneura*), neelia (*Acacia loderi*) and dead finish (*Acacia tetragonophylla*), with an under-scrub of *Cassias* and *Eremophilas.* They are usually to be seen in family parties of from four to six, feeding on the ground on the fallen seeds of the *Acacias, Cassias* and those of grasses and other herbage. Larger flocks come to water in a dry season. When on the ground the brown upper-surface of the birds harmonizes with the fallen leaves of the scrub trees and the dry herbage and is eminently protective. They go to water before dawn and after dark, often as late as 9 p.m., when they are hardly discernible. Bird-catchers have told me that in pulling their nets they have to be guided by the chirruping call-notes of the birds, rather than by sight. This habit (which was noted by Sturt) has earned for them the name of Night Parrots, by which they are known to all trappers and dealers in live birds.

They nest in a hollow in a scrub tree, at from three to ten feet from the ground, and rarely in a box tree at the edge of scrub. The eggs, from four to five in number, are deposited on the decayed woody material at the bottom of the hollow. The eggs are laid on successive days and incubation starts with the first egg laid, the female alone attending to this task. The male feeds the female during courtship and whilst she is incubating by regurgitation. She usually sits very closely, leaving the nest but once a day and only for a short period. The incubation lasts for seventeen days. The male is in close attendance upon the nest during this time and in an aviary endeavours to keep all other birds away from it; he is then a very excitable little being, flying about and calling in an alarmed manner.

These birds are easily bred in captivity, but each pair should be kept by themselves, and the fledged young should be separated as soon as the female shows signs of nesting again, as the male is apt to persecute the young birds and cause them serious injury. One pair that I have in an aviary reared five broods in the one season, extending from August until the middle of March.

When first hatched the young are covered with smoky-grey down. In fourteen days' time the primaries and rectrices are showing well, with feathers sprouting on all other tracts. Ten days later they are fully feathered and peeping out of the nesting-hole. Three days after this the earlier ones leave the hollow, one perhaps returning towards dark. Two or three days later all the clutch will be out. They are fed by the parent birds for a week or ten days after leaving the nest, and then have to fend for themselves.

Male and female are alike in plumage on leaving the nest and are garbed as follows:—Head and upper-surface uniform olive-brown; wing-primaries brown, outer web greenish-grey, gradually becoming more blue towards the bases after the fifth; secondaries brown, with bluish tinge to outer webs; tertiaries brown, with blue outer webbing and white edgings; spurious wing brown, with blue outer webbing and coverts brown, edged with blue; other coverts brown, edged whitish; upper tail-coverts brown; rectrices brown, with bluish tinge, especially in outer webbing in central six; outer three white on either side, with large brown patch on base of inner web proceeding from the outer; under tail-coverts brown, tinged with bluish-white; under-surface of wing brown, the secondaries showing a white band across the base; tertiary under-coverts blue; lores and space around the eyes whitish; ear-coverts brown; each feather of cheeks whitish, edged with brown; foreneck and chest brown, with edging of pink increasing towards the abdomen, where the feathers are wholly pink; flanks bright blue; legs and feet pale brown; bill brown; nostrils yellowish; tip of bill yellow, lower mandible yellow.

Average measurements of adult male and female and of a young bird that has just left the nest are as follow:—

Adult male, length 220 mm.; wing 120; tarsus 12; culmen 12.

Adult female, length 195 mm.; wing 118; tarsus 12; culmen 12.

Young bird, length 165 mm.; wing 108; tarsus 12; culmen 12.

It will be seen from these notes that the continuance of this very desirable species in its natural haunts depends upon strictly guarded sanctuaries and the absolute prohibition of its sale or export by dealers.

The Turquoise Parrot.

By G. A. HEUMAN, R.A.O.U., Sydney.

(See Coloured Plate.)

THE Turquoise Parrot is undoubtedly one of the prettiest and one of the sweetest birds of its kind in Australia. Alas, though, the species is, one might say, on its death-bed. Indeed, some time ago it was believed to be extinct absolutely, until odd birds made their appearance again. At one time they were considered to be distributed almost all over New South Wales. Now the few still in existence seem to inhabit the mountainous districts of the South Coast and the ridges a few miles out of Campbelltown. Probably they are partially migratory—that is, whilst their general habitat is rugged country, they come to breed in the plains.

A few years ago several pairs, to my knowledge, bred in the neighbourhood of Campbelltown, but I heard afterwards that the nests or the young had been destroyed through catapults, pea-rifles and children throwing stones at them. They are exceptionally trustful and fearless birds, and even in the open an observer can go quite close to them before they make a move. In collecting information about this species, an old trapper told me that 30 or 40 years ago, the Turquoisine was the commonest Parrot in his district, and often when he and his mates had an order for two or three dozen of them they could catch them before breakfast.

The price paid then by the bird-dealers was from 2s. to 2s. 6d. pair. Compare this with the £30 I paid recently for one cock bird which had accidentally been caught in a net set for "Diamond Sparrows." About 20 years ago, the trapper told me, the birds disappeared. Whether they died out or migrated no one knows. It is quite possible that a disease befell them similar to what happened to the Red-rumped Parrots in South Australia, and that only a few managed to survive.

As an aviary bird, the Turquoisine is undoubtedly one of the most desirable. With other smaller birds it lives in peace, and even with other Parrakeets it is never aggressive and breeds quite readily in their company.

I have caged Turquoise Parrots for many years now and seldom missed a year in their breeding. My aviaries are very large "flights," but a friend who has a pair of my young birds bred them in a packing-case. They use a small box with a round opening and lay generally four eggs, all four being hatched as a rule. I have never been able to get more than one brood during the season, but my friend, Mr. Harvey, junr., of Adelaide, to whom I sent a pair, obtained two broods of two pairs each, making four pairs for the season. These achievements in captivity show that if the breeding of these rare Parrakeets in private aviaries were encouraged, instead of being looked upon as vandalism, probably a strong strain of reproducing birds would be obtained and the sad day of extinction postponed. I liberated some of my young birds in the hope that they would remain and eventually breed in the district. One was returned to me a few days later—shot with a pea-rifle. The others I never saw again.

The Turquoise Parrot may be described as follows:—General colour green; face and wing-coverts blue; chest and abdomen in old cock birds almost orange, in young birds yellow; a chestnut spot on the shoulders; some of the tail-feathers edged with yellow. The female has not the blue on the face or wings or the chestnut shoulders, and the chest and abdomen are very pale yellow. I have, however, noticed some hens (even young ones) show a small chestnut patch on the shoulder, so that they might easily be mistaken for young cock birds. The sexes of the young birds are distinguishable the moment they leave the nest.

A Bird-Lover in the Mallee of North-western Victoria.

By CHARLES SULLIVAN, M.B., B.S., Elsternwick, Victoria.*

To see Mallee birds at home, one must wander somewhat off the beaten track. The older-settled portions of Victoria's north-west have been in most cases denuded of their timber, and so have lost their main attraction for the bird-lover. With the "rolling" of the Mallee scrub have gone many of the rarer species of our feathered friends. Before the ruthless advance of man they have retreated farther into country which is still their stronghold, and which is for the most part denoted on the map by blank spaces with an occasional tank or well as the prominent geographical feature.

During the latter half of 1923 I spent a few months on what one might call the fringe of this "No Man's Land." Turriff railway station, situated on the Mildura railway line, is some 260 miles from Melbourne. Thence the settled area extends about seven miles to the westward. Then there is a gap of five or six miles of scrub before one reaches Yallum, a small centre near the Hopetoun-Patchewollock railway. West of Yallum lie blank spaces as far as the South Australian border. My field of observation lay between Yallum and Turriff.

It was delightful to find there such rarities as the Scrub-Robin and the Ground-Wren. There they are by no means rare, though unnoticed by the majority of local people. During the first week in October, the Crimson Chat (*Epthianura tricolor*) was observed around the district. In other years odd specimens have been noticed, but in 1923 they were present in hundreds. The nests, which were very common in the saltbush on the plains, were built like those of the Banded or White-fronted Chat, mainly of horsehair and grass. The clutch was generally two, though several nests contained three eggs. Like his southern relative, the male takes his turn at the work of incubation, which occupies 12 to 14 days, the young leaving the nest some 10 or 11 days later.

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* Communicated by Dr. J. A. Leach.

The Red-tailed Thornbill (*Acanthiza hamiltoni*) is often seen here. Some members of this genus congregate in small flocks, but this species is of more solitary habits. The nest is a dainty little structure, built usually of grass, feathers and rabbit-fur. The usual clutch appears to be three eggs. One evening, early in October, I visited a nest which had been under observation for some time, and watched the old birds feeding their young. The female had already become accustomed to the presence of a motionless observer, but the male was much more cautious. They fed their progeny at intervals of five to ten minutes, the diet consisting mainly of small insects. Of the three young birds, only two were fed at each visit, while the third pleaded in vain. However, at the following visit justice was done and one of the others went hungry. Thus, the parents dealt fairly with each and did not allow the noisiest of the family to secure more than its due share. At each visit of the mother-bird I observed the removal of excreta from the nest. I had previously noticed that the outside of the nest was conspicuously clean in this respect, though, as is well known with some species of birds, the reverse is very often the case. After emptying her bill the mother would thrust her head into the nest, remove the fresh excrement and swallow it.* Sometimes, she flew off before completing her task, but careful observation finally left no doubt about the matter. The male, it was noticed, played no part in the cleaning of the nest, which took place every second visit.

In my first week here I saw no fewer than ten Southern Scrub-Robins (*Drymodes brunneopygia*) in widely separated localities. At times this bird is undoubtedly shy; on other occasions it is almost bold. While walking along the sandy road one often hears a low yet piercing call—one long note repeated at intervals. The bird is shyest at such a time. Gifted apparently with a wonderful ear, it hears the observer's "silent" aproach, and the call is repeated some ten yards farther on. Then it is heard in a somewhat different direction; again it shifts, and the first impression is that we have to deal with a well-nigh perfect ventriloquist. But the quick eye discerns an almost imperceptible flash of brownish-grey moving across a similarly-tinted background, and there is the bird, motionless under a low mallee bush, not crouching, but alert and ready for another rapid manœuvre. The rich-brown tail is not still for long; suddenly it flicks, and the dainty owner runs or hops another five or six yards at lightning speed. Yet his course does not always lead him back to the fence through the thickly-growing scrub. Often curiosity gains the upper hand and the next passage brings him to the edge of the road, whence, from under a flowering shrub, he gazes with unfeigned interest upon his would-be silent observer.

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* On re-reading my notes three years later, I feel somewhat doubtful on this point, owing to the effort of memory involved; but my original observations are emphatic in the matter, so I allow the words to stand.

On two occasions I have heard this bird indulging in a chatter somewhat similar to that of a Black-and-white Fantail (*Rhipidura leucophrys*). Each time I found him engaged in catching insects among the thick litter of dead mallee twigs. On the first occasion, I burst upon him unceremoniously and was astonished to find the singer not more than six feet distant from me. Little he recked, but went right on with his cheerful monologue. Picking about here and there, yet never going far away, he was under observation for at least fifteen minutes. The enthusiast may appreciate my joy on this occasion—my first glimpse of this rarity among Victorian birds.

There are times when our friend seems to lose every vestige of shyness. When the early morning sun is casting its life-giving rays upon the chilled earth, the Scrub-Robin sheds his usual timidity, mounts a low bush, often in full view from the roadside, and pours forth the rejoicings of his little heart in a burst of music. His song consists of a succession of loud, brisk calls, each of three notes, the last two being longer than the first. Though not a musician like the Grey Thrush, the Scrub-Robin has a plaintive note that stirs the listener's heart. Confident of the soothing power of his music, he heeds not the advent of the stranger. Or may it not be, rather, that he is wrapped in a musical ecstasy which carries him off to a mystic world that is proof against the intrusion of marauding man? Whatever the explanation, the fact remains that I have often seen the Southern Scrub-Robin perched on a dead bush, about six feet from the ground singing with all his heart. The stranger may walk noisily within five or six feet of the bird, stop and walk on again as carelessly as before, but in most cases the singer pays no attention whatever. If, however, he is definitely startled from his rhapsody, off he flies. I have seen him travel as far as eighty yards in a fairly direct flight.

The Scrub-Robin appears to be a rather pugnacious bird. While walking quietly through the scrub, one often sees squabbles between different species of birds. Along one particular mile stretch of the road I have seen them fighting on some ten or twelve occasions. In almost every case, the Scrub-Robin played his part and always appeared to be the aggressor. His antagonists in these little disputes included the White-browed Babbler, the Chestnut-tailed Ground-Wren, the Chestnut Quail-Thrush and the White-eared Honeyeater.

I spent much time searching for the nest of the Scrub-Robin, but without success until November 18. Then, quite accidentally, I flushed a bird from under a small bush, and on looking down discovered what I had sought so long. The small central cup, composed of the finest twigs of native shrubs, was surrounded by a border of mallee-twigs, some of them a quarter of an inch in diameter. This border was slightly over three inches wide, and with the central cup made the whole nest about nine inches in diameter. The egg was spotted brown and black on a dull-white ground, the spots coalescing into blotches around the broad zone. The prisoner within was, apparently, nearing the end of his confinement, as was shown by the egg being cracked.

I did not have an opportunity to return to the nest until a fortnight later, when I found the young bird had hatched. Except on the abdomen, which was flesh-coloured, the skin was a deep black, tinged in parts with a dark purple. Only a few rudimentary wing-feathers were sprouting, and the bird was very feeble in its movements. On my approach the mother struggled away as if wounded, her performance being the most realistic that I have seen. The male was in the vicinity, but both were rather shy and did not feed their offspring during the hour I spent there. Although they approached the nest several times with a meal for the young one, prudence prevailed over parental solicitude, and each time they ended by consuming the meal themselves. Owing to the fact that the nest was situated some four miles out in the Gama desert, I did not find it convenient to repeat my visit.

Up till this time I had not known what a Scrub-Robin's nest was like, but the day after this discovery I set out to find others nearer home, and had no difficulty at all in finding three which were untenanted. In two cases the nests were on the ground, the third being built at a height of about eight or nine inches on a fallen mallee shoot. Strange to say, all three were on the edge of the road, within five feet of passing vehicles. This does not betoken excessive shyness on the part of the bird, when it had at least a half-chain width of scrub at its disposal.

The Chestnut Quail-Thrush (*Cinclosoma castanotum*) is fairly common in the Turriff district. A beautiful bird, it is very shy, and when once it sees the observers stays not upon the order of its going. Its close relative, the Spotted Quail-Thrush (*C. punctatum*) is not so common there. The Quail-Thrush will always retreat if it thinks it can get safely away without being seen. If, however, it has no chance of this, it runs under a mallee shoot or native shrub and, as the observer

NEST AND EGG OF SCRUB-ROBIN.

WHITE-FACED TITMOUSE AT NESTING HOLLOW.

Photos. by A. H. Mattingley.

walks quietly round the bush the bird shifts, keeping always on the opposite side. It is very unusual to get a full-face view of this bird. It appears to realise that its throat and breast would be much more easily discerned against the greyish-brown litter of leaves and twigs.

Generally, these birds are found in pairs, though the partner may not be seen unless carefully looked for. The usual call is very low, yet piercing and extremely deceptive both as to direction and distance. I hold the Quail-Thrush to be a far more accomplished ventriloquist than the Crested Bell-Bird (*Oreoica gutturalis*). The call consists of one long note, repeated at intervals, and answered very often by the mate. There is also a harsh warning note uttered at times, which is apt to be confused with one of the notes of the White-eared Honeyeater. One bright sunny morning, I heard, in the scrub ahead, a long-continued burst of song a little louder than a Thornbill's notes and very similar, though not characterized by quite the same variety of notes. Hastening quietly forward, I came upon the singer—a Chestnut Quail-Thrush—perched about three feet from the ground. Like the Scrub-Robin, when in a musical ecstasy it paid little attention, and, without a falter in its beautiful morning hymn of joy, allowed me to walk boldly past at a distance of about eight feet.

On September 10, I came upon a female of this species with her bill full of bark. A fruitless search for the nesting-site was made in the strip of scrub between the road and the fence. Five days later I flushed her from the nest, which was situated on the edge of the wheat crop bordering the scrubby road. Sheltered by a small, dead mallee-shoot, it was built in a slight depression in the sandy soil. The material used was bark in strips of an average breadth of half an inch, with a few narrow, dead gum-leaves at the bottom of the cup. The clutch consisted of two handsome eggs, dotted with brownish-black spots on a background of pale blue. The bird was flushed on each of the two or three succeeding days. The male, as far as was noticed, took no part in the work of incubation. Often the bird would not rise till the observer, standing a yard away, concentrated a steady gaze upon her. Then off she would fly, with a whirr of her wings. I have not observed this ground-bird to fly more than about forty yards. The nest was always found to be vacated on a day of strong wind. On the afternoon of the 19th, I visited the nest as usual, but the eggs had vanished. No children could have taken them, as they never walked past there, and the event remained a mystery, to be solved at a later date, as will be seen hereafter.

The Ground-Wrens (*Hylacola cauta* and *H. pyrrhopygia*) are by no means rare in Turriff West, as I have seen some five or six pairs in a space of a mile along the main road. The Chestnut-tailed Ground-Wren appears to be the commoner of the two species. They are often seen in association with Blue

Wrens, which are also fairly common, both the Black-backed (*Malurus melanotus*) and the Purple-backed (*M. assimilis*) being represented.

The Ground-Wren is a bird to which one takes a strong liking, but I have found it impossible to awaken any confidence in the dainty little creatures. Once alarmed, they are exceedingly difficult to keep under observation. On September 12 I was searching for a possible Quail-Thrush's nest near the spot where, two days previously, I had seen the female with her bill full of bark. Suddenly, from the edge of the crop, off flew a pair of Ground-Wrens. Following them cautiously and attempting to imitate the Red Indian in noiselessness, I identified the species as the Shy Ground-Wren (*Hylacola cauta*). Returning whence they had flown, I searched carefully and at last discovered a small round depression in the sand, with three dry stalks of grass bent over it. It was partially screened by a couple of dead mallee-shoots. It did not look much like a nest or even the beginnings of one, and when, next day, there was no change, hope faded. By the 14th, however, it had taken definitely the appearance one wished to find—a dome of dry grass with a few small strips of bark laid above and about it. The entrance at the side led down abruptly to the sandy floor. On the 15th I found the nest furnished with a definite mat of grass and bark at the threshold, while the dome and sides were thickened. The threshold had a definite slope away from the nest, in order, I presume, to carry off rainwater. It was on this visit that, in turning away, I flushed the Quail-Thrush mentioned above. Her nest lay only five feet away and she was sitting on two eggs; yet she had not previously given any sign of her presence, although in walking off I had often passed within a yard of her. This particular day, however, I almost stepped on her, hence her noisy retreat.

By the 18th the Ground-Wren's nest had advanced much farther; the roof and sides had been felted with a mat of very finely-shredded bark, the innermost layer being a thin one of feathers; and now, when all was watertight, the little creatures proceeded with the flooring of their dwelling, which till this day had not been touched. By the afternoon of the 19th a cosy floor of shredded bark and a top-dressing of small feathers, apparently their own, had been constructed. Until this day (the 19th), approach as stealthily as I could, I had never seen the birds near the nest since I had first disturbed them a week before. To-day, however, I saw them again, but, as usual, they did not wait to dispute my presence. By the 21st the nest was apparently completed, and at this stage, not without some feelings of regret, I left the district for a week's vacation.

On October 2 I returned to the nest, hoping to find developments. I found them, indeed, in the shape of a stump-tailed lizard, whose awkward and ungainly form had invaded and partially wrecked the nest. Carefully I brought him forth—

the nest was empty. Carefully and cold-bloodedly I slew him, injuring the head only. Just as carefully and cold-bloodedly I drew my pocket-knife and proceeded with the autopsy. It disclosed the stomach contents as comprising one large bush "cockroach," many gum-leaves and buds of a flowering shrub, and many white parasitic worms—but no trace of a bird's egg. Slowly and sadly, I laid him down, with the faint hope that perhaps the bird had not yet laid. Alas! I fear this was the lizard's second visit to the nest—at any rate, it was his last. A fortnight later I revisited the scene. The two nests were still vacant, untended and untenanted. A chain away, in the ripening wheat, lay the bleaching remains of the miscreant that had wrecked these happy homes. Later observations served only to tarnish more deeply the reputation of the stump-tailed lizard as a ruthless enemy of both the Quail-Thrush and the Ground-Wren. The former lays two eggs, the latter three or four, yet few of the young reach maturity. The Scrub-Robin lays but one egg, yet in this district, at least, it is fairly common. Maybe its pugnacious disposition, previously referred to, serves it well in defence of its treasures.

The question arises, What does the future hold for these rarities of Victorian bird-life? Judging by the present rate of man's advance, another decade will probably see very little virgin Mallee scrub left in this State. The only hope lies in the so-called "desert" tracts that are found at intervals throughout this region. Timbered with the prevailing dwarf eucalyptus scrub which gives its name—Mallee—to the whole north-west of our State, these tracts are too sandy and salty for the cultivation of wheat, according to present farming principles at least. In these scattered desert patches these rare and interesting birds may find a sanctuary which will preserve their race for the pleasure and scientific interest of a generation of Victorian bird-lovers yet unborn.

"Splitting"----Generic and Sub-specific.

By F. L. BERNEY, R.A.O.U., Longreach, Queensland.

I WAS very glad to read Dr. Cleland's outspoken remarks *re* sub-specific splitting in *The Emu,* Vol. XXVI, p. 198. Most writers side-step the subject, owing no doubt to the difficulty of defining what should denote a sub-species; but it is no good shutting our eyes to an evil.

Nature does not recognize such terms as *genus* or *species,* but as you look through a collection of bird-skins, it is noticed at once that many of the species fall naturally into closely-related groups; and these, for convenience of classification, zoologists call *genera,* and the separate units composing them *species.* What is understood by ornithologists as "splitting" is a difficult and contentious subject, and because of the impossibility of defining limits an agreement can only be reached by a mutual understanding based on an unbiassed and commonsense view-point. As regards genera, surely our main object in classification should be to group, as far as possible, birds that show an undoubtedly close relationship, and not to split into different genera all closely-knit species—species that show, apart from colour and markings, some trifling difference, say, in the bill, or perhaps a slight proportionate difference between wing and tail measurements.

The generic name has always been an immense help to ornithologists, but if some extreme splitters could have their way we might as well drop it entirely; for with so many monotype genera it would be of little benefit, and would become an encumbrance. A. H. Evans, in *Birds,* writes (p. 15): "It cannot be denied that genera and species are merely convenient bundles, and that division of either, if carried too far, *defeats the object for which classification is intended.*" *

As an illustration of excessive splitting, take Mr. G. M. Mathews's handling of our Wood-Swallows (*Artami*), of which we have in Australia six species. These, in colour-scheme, make and shape, characteristics, and nests and eggs, are all as alike as peas in a pod—alike, but no two quite alike, just specifically different. Yet Mr. Mathews splits the six into no less than five genera. The generic name *Artamus* tells you at once that the birds so named are all very closely related, but what do Mr. Mathews's generic names *Angroyan* and *Campbellornis,* for two of the *Artami,* tell us? Absolutely nothing! The birds might be as far as the poles asunder, in-so-far as any relationship is indicated by the names. I have read carefully Mr. Mathews's reasons for his splitting of these birds, but the differences he points out are trifling indeed, quite insufficient on which to build new genera. Nothing is gained by this hair-splitting, but a lot of confusion is created where none existed before.

As regards sub-specific splitting, extreme splitters go much too far. Where, for instance, is the use of cutting (*vide* Mr. Mathews's *Birds of Australia*) the Brown Thornbill (*Acanthiza pusilla*), a species confined to Australia, into no less than 23 tri-nominally named sub-species; or the Grey Fantail (*Rhipidura flabellifera*) into 11 sub-species?—these 11 are the Australian forms only, and do not include the five additional forms allowed for various Pacific islands. Again, why split the Varied Wren (*Malurus lamberti*) into 19 sub-species, trinominally named? The three mentioned, and they are only examples among a cloud of witnesses, are exceedingly variable species and could be further subdivided *ad infinitum* did one so wish. The differences in each case are almost entirely confined to shades of colour or to a slightly greater

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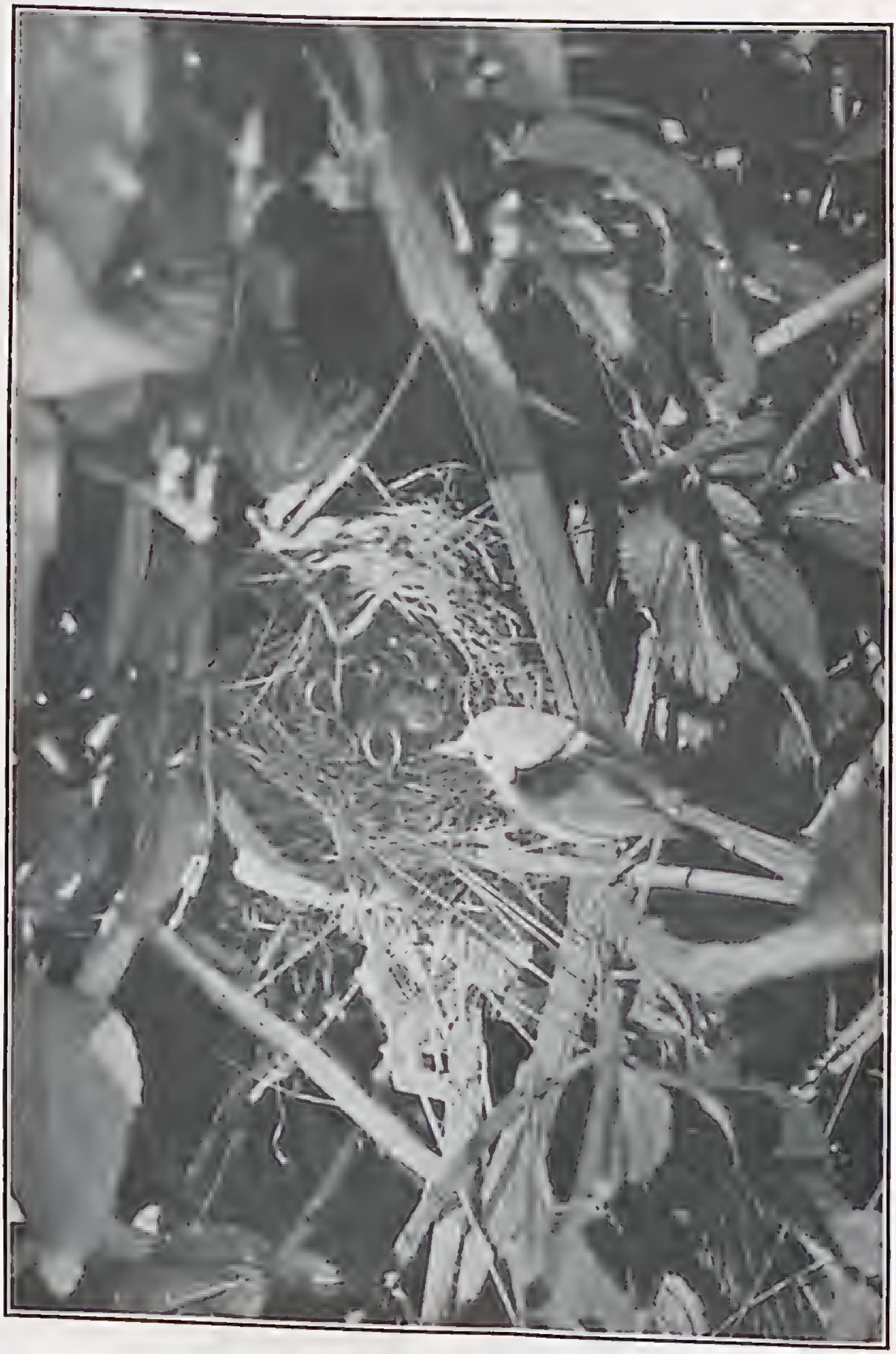
* The italics are mine.—F.L.B.



MALE VARIEGATED WREN (*Malurus lamberti*), AT NEST, WITH YOUNG, IN LANTANA BUSH.

Photo. by A. H. Chisholm.

or less extent of the white that is so common a feature of many birds' tails.

With such a multiplicity of varying forms, divided from each other by no sufficient barriers, overlapping in characteristics is inevitable, making diagnosis exceedingly unsatisfactory. In fact, it becomes impossible in most cases, unless you have a National Museum at your elbow with a full range of skins for comparison, and then the overlapping forms will beat you.

Mr. Robt. Hall, who, I think, sympathizes with the splitters, writes in *The Emu* (Vol. XXVI, p. 51) re Mr. Mathews's subdivision of the Sooty Owl (*Tyto tenebricosa*): "This appears to me as the correct geographical way of recognizing intensity of colour in plumage, *but there is no getting away from the innumerable intergradings on border lands.*" * Geographic varieties should, of course, be recorded as such, though without names, but should be much more *generalized.* Why attempt separate descriptions of every trifling local form, which serves only to cumber ornithological literature with a plethora of scientific names that are practically useless because they cannot be made use of?

As regards describing so-called sub-species, in the large majority of cases, owing to the chief distinctive features being confined to slight differences in shades of colour, it is impossible to do so except by the continual use of such comparative terms as "slightly darker," "smaller," or "more extensive." If you have not named skins for comparison you are helpless.

Often in Mr. Mathews's work do we come across instances such as the following:—

Lewinornis rufiventris gawlerensis.—Differs from *L. r. rufiventris* in being paler altogether and in having a smaller bill.

Rhipidura flabellifera victoriæ.—Intermediate between *R. f. alisteri* and *R. f. albiscapa;* nearer the latter in having the dark back from which it is easily separable by its smaller size.

Cithonicola sagittata inexpecta.—Darker above and slightly smaller.

Take also the many sub-species of the very variable Grass-Warbler (*Cisticola exilis*). In practically every case here the description of one sub-species is only to be obtained by reference to another. They cannot be separately described, the differences being mere shades of colour, with now and again a trifling variation in size, which may be confined to the bill only. The references to size are of little use for diagnosing, for the larger forms vary to the small, and the smaller to the large—there is no dividing line. Such descriptions are practically valueless to the man who has a skin to name but has not a national collection at hand for reference.

I fail to see the wisdom of giving distinctive names to forms that cannot be described owing to their blending one into another. There is a wide difference between local varieties and true sub-species; the former are innumerable, the latter very rare indeed. Neither Darwin nor A. R. Wallace could see more than genera, species and varieties—they never accepted the term "sub-specific."

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* The italics are mine.—F.L.B.

Wallace wrote (*Natural Selection,* 2nd edition, p. 160), under the heading of "Races or Sub-species":—"These are local forms completely fixed and isolated . . . . . . The races of *Papilio ulysses,* for example, vary in amount of modification from the scarcely differing New Guinea form to those of Woodlark Island and New Caledonia, but all seem equally constant and have already been named and described as species." He goes on to say that there is no doubt the three forms have sprung from a common stock, and therefore for unity of treatment should be called either varieties or species. Further, he writes:—"I think it advisable to name all such forms, and those who will not accept them as species may consider them as sub-species or races." Note that Wallace is here dealing with three *isolated* island forms, alike, but well differentiated, and as he says "*constant.*" He calls them species, never in any of his classifications using the term sub-species; what was not a species was a variety.

A sub-species is the early stage of a new species, which time and isolation will develop, but not one in a thousand of our so-called sub-species will ever get beyond the varietal form, because they will lack isolation. They will always be varying varieties.

Local varieties are due to the action of food, water and atmospheric conditions, and to become fixed require *isolation* for a period of time, of the length of which we can form no conception. There is no sign of fixity about the vast majority of our Australian so-called sub-species. Change their environment and they would not breed true to parent type. Moreover, there is little doubt that the parent birds themselves would after a couple of moults develop the local peculiarities.

Australia is not favourably conditioned for the making of true sub-species. We lack the big contrasting physical features of the great continents. There is too much sameness in our general conditions. The dryness or humidity of our climate are the chief influences, and these continually vary. Dr. Leach, in the course of an ornithological article in *Life* (May, 1927), writes:—"Australia is a land devoid of barriers to . . . . . freely wandering birds. There is a movement of birds into different districts, and a general mixing of forms as seasons alternate. From any district a dry season may drive birds afield. Soon a good season enables the district to provide for the birds previously driven out and others that return with them. This movement destroys the isolation which is essential to the production and perpetuation of new forms and species. It allows the swamping effects of interbreeding to destroy species in the making." This, I would point out, is not necessarily a movement on the regular routes of migration; it is as likely to be east and west as north and south.

Before Darwin, naturalists believed in "special creation," not realizing that the world and all that is therein is subject to change that is unending. Nowadays, the changing is recognized by every one who thinks, but there are a few who would attempt to hurry the slowness of Nature's movements in the building-up of species and sub-species by attaching names to varying local forms that are still in the melting-pot.

Only such geographic forms as already show indications of fixity of some marked distinction should be given sub-specific rank and a trinominal name. This, I realize, would wipe out practically all our Australian trinominally-named sub-species, but the names would be no loss, for they are of little or no value owing to the impossibility of making use of them on account of the want of definition between one form and another. Better a good deal merely to say that your bird is the northern, or southern, or mallee or central desert (or so on) form. This would be simpler and far more informative. It is impossible for any man to commit to memory the 4,000 or 5,000 additional scientific names with which it is proposed to burden the study of Australian ornithology. I would group a lot more in this respect than extreme splitters do, for I cannot see the use of trying to keep separate all the parochial varieties at present attempted.

The conditions as regards this matter in Australia and Europe, as previously suggested, are widely different. With Africa and Asia at its doors, the European avifauna has a much greater extent of country, with every extreme of physical feature, over which to range, and therefore comes under far greater influences than does the avifauna of Australia. Here, with the exception of the waders and a very few others, the great majority of birds do not leave our shores during migration, and are therefore subject to conditions that vary comparatively little all the year round.

I much regret, on account of the nomenclatural confusion it must tend to create, that Mr. Mathews, in his *Birds of Australia,* should have carried splitting, more particularly genus-splitting, to the extent he has. His great work will be the standard of Australian ornithology for many years to come, and will be always a monument to the author, whose name will rank with that of John Gould. We are indeed fortunate in having an ornithologist in Mr. Mathews's position prepared to give twenty years of his life to the production of such a work.

The terms "splitter" and "lumper" are often misleading, because the lumper will split when he considers he has grounds for so doing, and the splitter will lump when he sees fit. At present, in-so-far as concerns this matter, every ornithologist must be a law unto himself. Time and the law of the survival of the fittest will show who is right.

New Species of Field-Wren.

By A. G. CAMPBELL, R.A.O.U., Kilsyth, Victoria.

Calamanthus winiam sp. nov.—Forehead russet; crown and back deep greyish-olive; whole upper-surface boldly streaked black; lores and brows white; ear-coverts olive-brown streaked white; upper tail-coverts russet at base; tail olive-brown at base with subterminal black bar 0·5 inch in width, tip whitish; under-surface white; throat, breast and flanks boldly streaked black; bill brown; legs light brown; length 5 inches; bill 0·55 inch; wing 2·2 inches; tail 2 inches; tarsus 0·9 inch.

Type, male, in National Museum, Melbourne; taken August 30, 1923, near Winiam, south of Nhill, Victoria.

The female resembles the male, but the ground colour of the under-surface is light buff, not white; wing 2·1 inches.

The young bird on leaving the nest has a colouration identical with the female—well streaked above and below, but the wing is shorter—1·9 inches—and the tail 1 inch, not fully grown.

This species is found in a tract of country in western Victoria, extending into South Australia, known as "the Sandy Desert," scrub-covered moorland—a "no-man's land"—which is also the habitat of *Acanthiza hedleyi.*

The species differs from *Calamanthus fuliginosus* in the deep greyish tone of upper-surface and entire absence of citrine colour. It differs from *C. campestris* in the restricted patch of russet upon the forehead and the heavy nature of the striations. It approaches nearest to *C. montanellus* of south-west Australia, and its ally, the insular form, *C. hartogi,* but is whiter beneath and is a larger bird.

Nest.—Oval in shape (placed on side with entrance at one end); foundation (built in slight hollow scooped in sand) composed of short, fine, greyish pieces of grass intermixed with brownish, downy portions of banksia cones; upper outside structure composed of dead, greyish, weather-beaten grass, very small sticks and fine dead branchlets of bushes; lined inside with a thick ply of feathers, including Emu, Wattle-Bird, Quail, Magpie, Raven and Brown Hawk, in addition to those of its own species, and down of Grey Duck, insect cocoons and wool. Dimensions in inches: Length about 6, height and breadth 4, entrance 1½ diameter.

Eggs.—Clutch, three; short ovate in shape; texture of shell comparatively fine, surface glossy; colour wood-brown, with darker soft blotches of same colour (or chestnut) about the upper quarter, in one specimen (No. 1) in the form of an indistinct band. Dimensions in centimetres: (1) 21 × 15·7, (2) 20·3 × 15·5, (3) 20 × 15·2.

Found on September 15, 1927, by A. J. Campbell and R. J. Oldfield near Winiam, western Victoria. "Winiam" or "Weeneum" is stated to be a corruption of the aboriginal name "Win-in-iam," meaning "wild honeysuckle," probably the serrated-leafed banksia, which grows abundantly in the neighbourhood.

Notes on a Collection of Birds from South and South-western Australia.

By J. R. KINGHORN, C.M.Z.S., and H. O. FLETCHER, Sydney.*

THE birds listed in the following pages were collected, or observed, during the years 1919 to 1922 by the members of two separate expeditions from the Australian Museum, Sydney.

Late in 1919 and extending to about July, 1920, Mr. E. Le G. Troughton, zoologist, undertook a trip to South Australia. Starting from Adelaide, he visited many localities from Kangaroo Island in the south, through Eyre's Peninsula, to Farina in the north. The object was a general one as far as collecting was concerned, and besides many interesting birds, a number of new or rare reptiles, amphibians, mammals, insects and other items of natural history were collected. Late in the following year he started out again in company with Mr. J. H. Wright, assistant taxidermist, and journeyed across the southern part of Australia by way of the trans-Australian railway, spending some days here and there at such places as 407 Miles (now known as Immarna), Ooldea, and Fisher, on the Nullarbor Plain. A full account of this second trip, with some interesting notes on the nesting habits of the Brown Hawk, the Boobook Owl and other species, may be found in *The Emu* (Vol. XXIV, p. 215) and the Records of the Australian Museum, from the pen of Mr. Troughton.

The type of country visited is not such as would entice one on a pleasure trip, but, though mammals and birds are scarce, it is a most interesting locality to the naturalist.

Mr. Troughton found the Mulga Parrot (*Psephotus varius*) in comparatively large numbers on the Plain, and he was fortunate in meeting the rare Turquoise Parrot (*Neophema pulchella*), and a female of the Scarlet-chested Parrot (*N. splendida*). Perhaps the most notable of the birds collected was the White-backed Wren; its discovery was recorded in *The Emu* some three years ago (Vol. XXIV, p. 29).

Mr. Troughton returned to the Museum after visiting the Albany (Western Australia) district, leaving Mr. Wright, who, later, was joined by Mr. A. F. Bassett Hull and Mr. H. S. Grant, taxidermist. This party had most interesting and varied experiences while visiting the islands of the Recherche Archipelago. There they collected, among other things, some birds which we in eastern Australia rarely have the opportunity to add to our collections.

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* By permission of the Trustees of the Australian Museum.

A map of the localities visited appears below, and a complete list of the birds collected follows. The names used are those of the latest Checklist:—

LIST OF THE BIRDS.

Little Penguin (*Eudyptula minor*).—Male and female collected on Mistaken Island, King George's Sound, W.A., where they were in large colonies on November 20, 1921. A male and female from Rabbit Island, Recherche Archipelago, where only isolated pairs were seen on December 10, 1921, and a female and eggs from Rob Island, Recherche Archipelago, on December 6, 1921; isolated pairs were nesting.

Mallee-Fowl (*Leipoa ocellata*).—A set of four eggs was found at Immarna, east-west line, South Australia, October, 1921. No birds were seen or heard.

Brown Quail (*Synoicus australis*).—A female was collected on Woody Island, Recherche Archipelago, December 7, 1921. Woody Island is also known locally as Quail and Gunten Island.

Little Quail (*Turnix velox*).—A female was collected at Ooldea, South Australia, on October 10, 1921. Head, mantle, breast and general plumage rufous-tinted. Eye straw-coloured, bill bluish-white, legs and feet flesh-coloured. No other specimens were seen here, but between Ooldea and the Soak, not actually on the Plain, three birds were flushed. Six miles south of Ooldea several pairs were seen.

Brush Bronzewing (*Phaps elegans*).—A male from Deep Creek, 20 miles from Kingscote, Kangaroo Island, South Australia, February 8, 1920. Eyes brown; bill black; legs and feet flesh-pink. This is probably a young bird, as the crown of the head is grey and the chestnut patch is just appearing on the throat. Four males were collected on Woody Island, Recherche Archipelago, December 7, 1921.

Crested Pigeon (*Ochyphaps lophotes*).—Two males from Mount Lyndhurst, 30 miles east of Farina, South Australia, December 17, 1919. One from a tree in a dry creek, and the other feeding on the ground at the same place among other Pigeons.

White-faced Storm-Petrel (*Pelegadroma marina*).—Seven specimens—two males and five females—were collected on Lion Island, Recherche Archipelago. A large colony of these birds was nesting in the pig-weed.

Fleshy-footed Shearwater (*Puffinus carneipes*).—Four females and four eggs from Charley Island; a male and a female from Rabbit Island; and four males, one female and an egg from Mondrain Island, December 4, 1921, all in the Recherche Archipelago, where the species was plentiful.

Crested Tern (*Sterna bergii*).—A female from Cooks Rocks, Esperance, South-west Australia, December 10, 1921.

Pacific Gull (*Gabianus pacificus*).—Two males and two females collected at Albany, Western Australia, November 16, 1921. This species was in exceptionally large flocks.

White-faced Tern (*Sternula nereis*).—A female from Mississippi Bay, eight miles from Esperance, December 5, 1921.

Sooty Oyster-Catcher (*Hæmatopus unicolor*).—One male from Lion Island, Recherche Archipelago, November 26, 1921. Only four birds were seen on this island.

Hooded Dotterel (*Charadrius cucullatus*).—A female was collected from a small flock which was feeding on the damp mud at the edge of Birchmore Lagoon, 15 miles from Kingscote, Kangaroo Island, on January 24, 1920. Another female was secured at Lucky Bay, 26 miles east of Esperance, where only one pair was seen on December 2, 1921.

Red-capped Dotterel (*Charadrius ruficapillus*).—One male was collected on the sea-beach at Proper Bay, Tulka, eight miles from Port Lincoln, South Australia, on April 24, 1920. One male from 17 miles east of Cranbrook, south-west Australia, November 6, 1921; two males and two females from Lucky Bay, December 2, 1921; they were in small flocks on the beach. They were very numerous on the shores of the salt lakes, five miles from Esperance, and a male and female were collected there on December 9, 1921. Fresh water was not handy, and Ducks and other birds appeared to drink the salty lake water.

Australian Dotterel (*Peltohyas australis*).—One female from Fisher, Nullarbor Plain, October 26, 1921. While the Museum party was at Fisher, this species was observed to arrive in flocks, usually anticipating a shower of rain.

Red-necked Stint (*Erolia ruficollis*).—A male was collected at Tulka, eight miles from Port Lincoln, South Australia, on March 24, 1920.

Sharp-tailed Sandpiper (*Erolia acuminata*).—A female secured at Albany on November 16, 1921. The species was common on the shore near the town, as well as in the surrounding districts.

Australian Bustard or Plain Turkey (*Eupodotis australis*).—A male and female from Ooldea, October 15-17, 1921. Eyes white, bill dark brown, legs pale bluish-white. Not numerous, but their numbers ran into double figures.

Nankeen Night-Heron (*Nycticorax caledonicus*).—A male from Lion Island, Recherche Archipelago, October 26, 1921. Found breeding in thousands. They rose like clouds from the gnarled scrub, a little higher up the beach from where the *Pelagodroma* were nesting.

Cape Barren Goose (*Cereopsis novæ-hollandiæ*).—A male and female from Rob Island, Recherche Archipelago, December

16, 1921. Three pairs were seen here, but they were said to be more plentiful on neighbouring islands.

Mountain Duck (*Casarca tadornoides*).—One female 17 miles east of Cranbrook, south-west Australia, November 9, 1921. Eyes hazel; bill black; legs grey. There were thousands of these birds in the salt lakes surrounding the district.

Spotted Harrier (*Circus assimilis*).—A female from Fisher, Nullarbor Plain, October 26, 1921. Only a few birds of this species were seen; they were distinctly desert forms. Breast fulvous; all underparts inclined to sandy-buff; top of head rufous; back and scapulars lighter, with dark centres to the feathers; lower back and rump sandy-buff; secondaries and tail-feathers tipped with sandy-buff.

Sparrow Hawk (*Accipiter cirrocephalus*).—One male from Albany, Western Australia, November 16, 1921.

Black-cheeked Falcon (*Falco peregrinus*).—Found breeding at Lion Island, Recherche Archipelago, November 26, 1921. The nests were on the seaward side of the cliffs and were almost inaccessible.

Brown Hawk (*Falco berigora*).—Two males from Fisher, Nullarbor Plain, October 19, 1921, and one male from Charley Island, Recherche Archipelago, November 29, 1921. This species was numerous in the Fisher district, and also at other points along the east-west line. Many were unable to find trees in which to breed, and so built their nests on the cross-pieces of the telegraph-poles and signal-posts, one nest being situated right alongside the Fisher railway-siding. The specimens from this locality assumed the typical desert hue, the younger birds being somewhat darker than the adults, with brown tips to the breast feathers, giving the birds a mottled appearance.

Nankeen Kestrel (*Falco cenchroides*).—A female from the plain west of Ooldea, October 14, 1921. This was one of the three young specimens found in a nest in a "blowhole" on the plain.* (Owls nest further down in these "blowholes.") A male and female were collected at Fisher, Nullarbor Plain, October 25, 1921, and three eggs taken from a "blowhole" were donated by Mr. Taylor, of Fisher. Another female was collected 17 miles east of Cranbrook, south-west Australia, on November 10, 1921.

Boobook Owl (*Ninox boobook*).—A female and two eggs were collected from a hollow spout in the Mallee at Immarna on October 3, 1921.

Barn Owl (*Tyto alba*).—A female was collected from the underground caves ("blowholes") at Ooldea, October 16, 1921. This species was quite numerous in the district, which was probably a favourite breeding-ground.

Rainbow Lorikeet (*Trichoglossus moluccanus*).—Three males were collected, one each from the following localities:—

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* E. L. Troughton, *Rec. Aust. Mus.*, xiv, 1, 1923.

Timber Creek, 20 miles from Kingscote, Kangaroo Island, February 2, 1920; Koppio, near Todd River, 20 miles from Port Lincoln, March 17, 1920; Sturt Creek, near Blackwood, Adelaide, March 13, 1920.

Musk Lorikeet (*Glossopsitta concinna*).—Two males and a female from Koppio, March 12 and 17, 1920.

Purple-crowned Lorikeet (*Glossopsitta prophyrocephala*).—One male from Koppio, and two males and one female from Sturt Creek, Blackwood, South Australia, March 16 and 3, 1920, respectively.

White-tailed Black Cockatoo (*Calyptorhynchus baudini*).—A male from 17 miles east of Cranbrook, south-west Australia, November 10, 1921. Very numerous in the district.

Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus*).—One male from Kangaroo Island. This specimen was very high up in a tall gum tree on the slope of a gully, and had to be "called" to within range.

Pink Cockatoo (*Kakatoe leadbeateri*).—A male from Ooldea, October 14, 1921. The species was in flocks of hundreds throughout the district. Mr. Davies, who lives five miles north of Ooldea, usually attracted them by placing a dish of fresh water out on the "Soak."

Galah (*Kakatoe roseicapilla*).—A male and female from Mount Lyndhurst, 30 miles east of Farina, December 17, 1919. Shot from a tree in a dry creek. The eyes of the male were brown, and those of the female pink.

Red-capped Parrot (*Purpureicephalus spurius*).—One male and two females were collected from near the salt lakes, five miles out from Esperance, on December 9, 1921.

Mallee Parrot (*Barnardius barnardi*).—A female was collected at Mount Lyndhurst, 30 miles east of Farina, on December 25, 1919. Several specimens were seen among the trees in a dry watercourse.

Twentyeight Parrot (*Barnardius semitorquatus*).—A male was collected 49 miles inland from Esperance on December 12, 1921.

Yellow-banded Parrot (*Barnardius zonarius*).—Two males and a female from Koppio, Todd River, 20 miles from Port Lincoln, March 15, 1920. There were numbers in this district. One male was collected 17 miles east of Cranbrook, south-west Australia, on November 10, 1921; they were not numerous here.

Mulga Parrot (*Psephotus varius*).—A male and female from 30 miles east of Farina, on December 21, 1919. Secured in a dry creek; they were not numerous in the district. Two males were collected at Tulka, eight miles from Port Lincoln, on March 23, 1920. They were fairly common here. One male from Ooldea, where they were not numerous, on October 14, 1921. Two males and a female from Immarna on October 3, 1921; here there appeared to be a number of fair-sized flocks, and many young birds were seen flying with their parents.

Scarlet-chested Parrot (*Neophema splendida*).—A female was taken at Immarna by Messrs. Troughton and Wright on October 4, 1921. Eye hazel; bill bluish-white; legs yellowish, washed with grey. Mr. Wright informs me that it was one of a flock of about twelve and that there were numbers of used nests in the spouts of the Mallee in the immediate vicinity. This specimen was figured and the discovery referred to in *The Emu,* Vol. XXVI, p. 235, April, 1927.

Rock Parrot (*Neophema petrophila*).—Three males and one female from Norths' Brothers Island, Port Lincoln, on April 2, 1920. Eyes brown; feet dark olive; upper mandible dark slate, edges olive; lower mandible light olive tipped grey. These specimens were shot in the low scrub and on the rocks near the water. The species was quite numerous on the island, and at dusk collected in large flocks. They usually flew to the rocks if alarmed or injured. A male and female were collected on Woody Island on December 7, 1921; and eight males were secured on Charley Island on November 29, 1921, all in the Recherche Archipelago. Several flocks, each numbering about a dozen, were seen.

Budgerygah (*Melopsittacus undulatus*).—A male and female collected at Mount Lyndhurst, 30 miles east of Farina, on January 3, 1920. They were shot while drinking at a water-trough.

Tawny Frogmouth (*Podargus strigoides*).—A female from Koppio, near Todd River, 20 miles from Port Lincoln, on March 14, 1920. This specimen was captured while feeding on the ground, just before sundown. It is beautifully marked; the scapulars are chestnut, each feather being crossed with a white bar, and the basal portion is blackish-grey. Many of the feathers of the breast and, throat also are chestnut. Two fledglings were found at Immarna on October 3, 1921.

Owlet-Nightjar (*Ægotheles cristata*).—The collectors were fortunate in securing a specimen at Immarna on October 3, 1921; it was found hiding in the hollow spout of a mallee, and is probably the most difficult species to find in those parts of the country.

Red-backed Kingfisher (*Halcyon pyrrhopygius*).—A male was collected at Mount Lyndhurst, 30 miles east of Farina, on December 24, 1919. Its stomach contained a partly-digested lizard and portions of ants and beetles. A male and a female were collected at Immarna on October 2, 1921. This and other pairs in the district were mating, and had commenced nesting operations by tunnelling in low banks of earth.

Sacred Kingfisher (*Halcyon sanctus*).—A female from Birchmore Lagoon, 15 miles from Kingscote, Kangaroo Island, on January 20, 1920. Another female was secured 17 miles

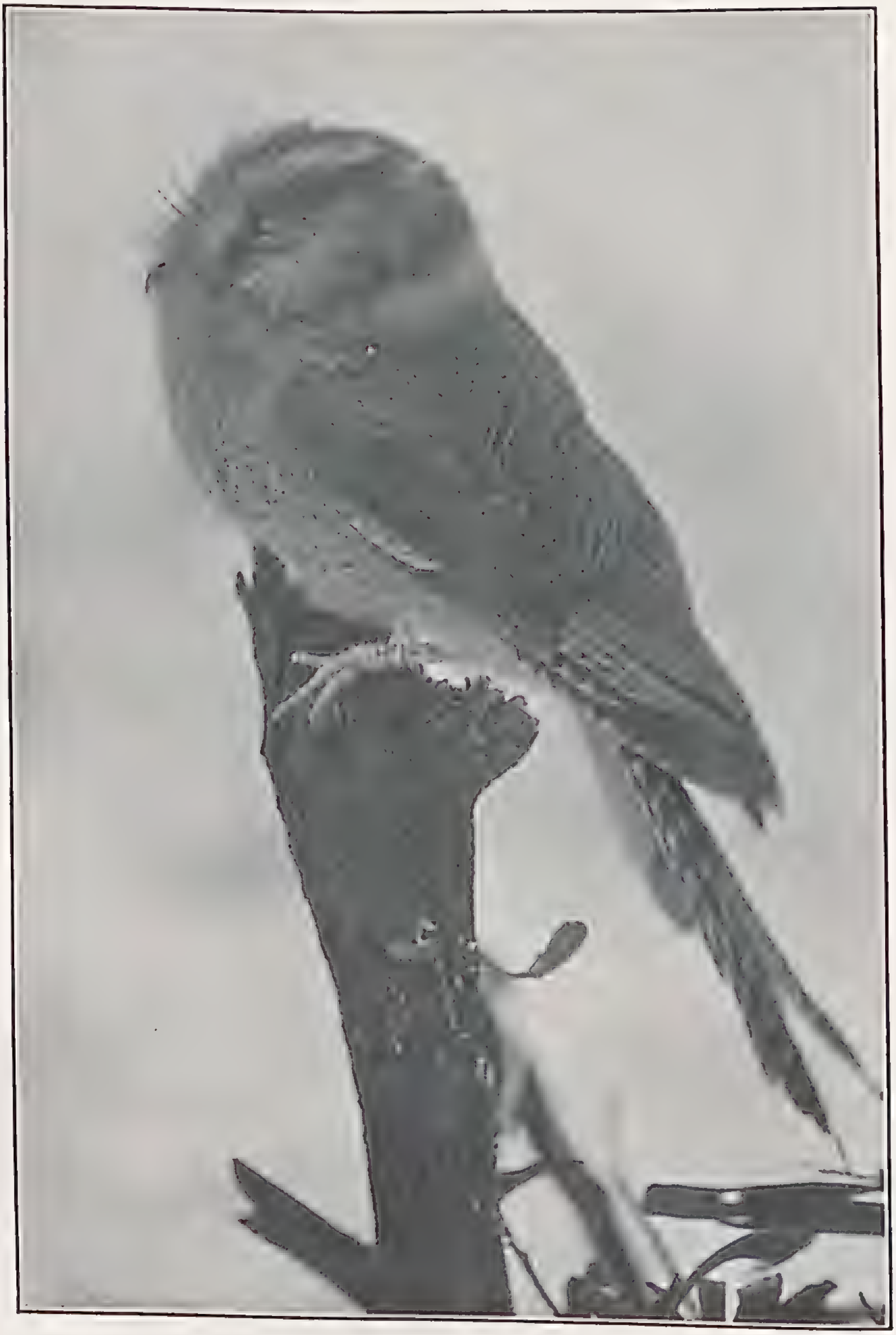

Photo. by O. Webb.

OWLET-NIGHTJAR.

NATIONAL MUSEUM MELBOURNE

east of Cranbrook, south-west Australia, on November 8, 1921.

Rainbow Bird (*Merops ornatus*).—A female was collected from a dry watercourse at Mount Lyndhurst on December 25, 1919.

Pallid Cuckoo (*Cuculus pallidus*).—A female from Immarna on October 1, 1921. Being a desert form this specimen shows the effect of its environment, for the back is profusely spotted with rufous where usually there is light buff. The species was not common at Immarna; only a few pairs were seen.

Golden-bronze Cuckoo (*Lamprococcyx plagosus*).—A female was secured near Middleton Beach, Albany, on November 16, 1921. Only a few isolated pairs were seen.

Scissor-Grinder (*Seisura inquieta*).—A male was collected in the scrub near a spring at Birchmore Lagoon, Kangaroo Island, on July 29, 1920. The feathers of the breast are tinged with rusty yellow.

Red-capped Robin (*Petroica goodenovii*).—Three males were secured; one from Ooldea Soak on October 10, 1921; one from Mount Lyndhurst on December 27, 1919, in the Mallee scrub; and one from Proper Bay, Tulka, eight miles from Port Lincoln, on March 23, 1920.

Hooded Robin (*Melanodryas cucullata*).—One adult male from Ooldea on October 10, 1921. There were numbers of these Robins in the district, but they were very shy and hard to approach. A young male was taken 17 miles east of Cranbrook on November 6, 1921; the back and throat are mottled with grey, and the tail is grey.

Western Yellow Robin (*Eopsaltria griseogularis*).—A male from Proper Bay, Tulka, on March 24, 1920, and another from 17 miles east of Cranbrook on November 8, 1921. They were not common in either locality.

Golden Whistler (*Pachycephala pectoralis*).—One male only was collected, and that from Woody Island, Recherche Archipelago, on December 7, 1921. This was the only one of the species seen.

Red-throated Whistler (*Pachycephala rufogularis*).—One male was collected at Deep Creek, Kangaroo Island, on February 9, 1920.

Western Shrike-Thrush (*Colluricincla rufiventris*).—A male and female from Koppio, near Todd River, 20 miles from Port Lincoln, on March 16, 1920. They were by no means common.

Crested Bell-Bird (*Oreoica gutturalis*).—A female from Ooldea on October 10, 1921. This specimen is immature; the upper tail-coverts are buff; feathers of the breast, throat, and parts of the abdomen are ashy-grey. A male and female were collected at Immarna on October 2, 1921; the male is in full plumage but the female is immature, and is more or less a desert form; the upper tail-coverts are buff, the throat white, the breast tinged with cinnamon. The species was fairly plentiful in the Immarna district.

Black-faced Cuckoo-Shrike (*Coracina novæ-hollandiæ*).—A female from Birchmore Lagoon, Kangaroo Island, on January 25, 1920. This specimen had not attained its full adult plumage. An immature female was also collected at Immarna on October 3, 1921. A male and female were taken from Esperance, where they were in flocks, and one adult male was collected 17 miles east of Cranbrook on November 10, 1921. A flock of about a dozen was seen in this district.

White-shouldered Caterpillar-eater (*Lalage tricolor*).—A male was collected at Ooldea on October 10, 1921. Mr. Troughton told me that an aboriginal boy threw his nulla at one and killed it, but was very disappointed to find that it was too damaged to be made up into a skin. This boy could throw his nulla with consistent accuracy.

Nullarbor Quail-Thrush (*Cinclosoma alisteri*).—A male and female were collected on the plain, about nine miles west of Ooldea, on October 15, 1921. There were a few scattered flocks, each containing about six birds. The male is immature, the throat and foreneck being mottled with grey. Its measurements are as follow:—Total length 170 mm.; wing 80 mm.; tarsus 26 mm.; culmen 15 mm. The female is an adult; total length 185 mm.; wing 85 mm.; tarsus 26 mm.; culmen 16 mm. These specimens are identical with the sub-species *nullarborensis*.*

Southern Scrub-Robin (*Drymodes brunneopygia*).—A male and female were secured from Koppio, 20 miles from Port Lincoln, on March 18, 1920. A fair number of these birds were seen in this district, where they were running about on the ground under the low bushes, seldom flying into the branches.

White-browed Babbler (*Pomatostomus superciliosus*).—A male and female from Mount Lyndhurst, 30 miles east of Farina, on December 17, 1919, in a tree in a dry creek. A male from Koppio on March 18, 1920. A female from the plain several miles west of Ooldea, where they were plentiful, on October 15, 1921; and another female from 17 miles east of Cranbrook on November 8, 1921.

Crimson Chat (*Ephthianura tricolor*).—Two females from the plain west of Ooldea on October 15, 1921. This species was very plentiful on the plain, and easy to approach.

Brown Weebill (*Smicrornis brevirostris*).—A male from Immarna on October 2, 1921. Not common.

Eastern Whiteface (*Aphelocephala leucopsis*).—A male from the trees on the flat country near a dry watercourse at Mount Lyndhurst, December 12, 1919. A female was collected at Tulka, eight miles from Port Lincoln, on March

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* A. J. Campbell, *The Emu*, XXI, 3, 1922, p. 161.

23, 1920, and a male (?) from the plain west of Ooldea on October 15, 1921. It is a rare species in this district.

Brown Thornbill (*Acanthiza pusilla*).—A female was collected at Proper Bay, eight miles from Port Lincoln, on March 24, 1920. Eye red; bill dark slate; legs and feet slate-coloured.

Chestnut-tailed Thornbill (*Acanthiza uropygialis*).—A female from Ooldea Soak, five miles from Ooldea, on October 10, 1921. The species was not numerous here.

Buff-tailed Thornbill (*Acanthiza reguloides*).—A male and female from the plain west of Ooldea on October 13, 1921. They were not numerous, but several small flocks were seen.

Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*).—One male was collected at Proper Bay, eight miles from Port Lincoln, on March 24, 1920.

Redthroat (*Pyrrholæmus brunneus*).—A male from Mount Lyndhurst on January 2, 1920.

Rock Field-Wren (*Calamanthus montanellus*).—A female was collected 17 miles east of Cranbrook on November 10, 1921. There were numbers of them in the district, but they were not easy to approach.

Rufous Field-Wren (*Calamanthus campestris*).—A female from Fisher, Nullarbor Plain, on October 25, 1921. This locality extends the distribution of the species much farther west than that recorded in the Checklist.

Striated Field-Wren (*Amytornis striatus*).—A male from Mississippi Bay, eight miles from Esperance, on December 5, 1921. Very few of this species were seen in the district.

Emu-Wren (*Stipiturus malachurus*).—A male was collected at Deep Creek, Kangaroo Island, on February 11, 1920. This evidently is a young specimen; the head is rusty brown, but the darker markings typical of the adult are absent.

Common Blue Wren (*Malurus cyaneus*).—A male from Deep Creek, Kangaroo Island, on February 12, 1921.

Turquoise Wren (*Malurus callainus*).—Three males and one female were collected; the males from Ooldea and the female from the Soak five miles from Ooldea. This species is fairly common in the country between Ooldea and the Soak. There are four other males of this species in the Australian Museum collection.

Blue-and-white Wren (*Malurus cyanotus*).—Two males from the plain nine miles west of Ooldea on October 14, 1921. Eyes brown; bill slate-grey; legs and feet grey. A male from Mount Lyndhurst on December 25, 1919. On the plain near Ooldea this species occurred in small, scattered groups, containing from a pair to six or eight specimens.

White-backed Wren (*Malurus leuconotus*).—One male was secured at Mount Lyndhurst on December 25, 1919.

Black-faced Wood-Swallow (*Artamus melanops*).—A male and female from Mount Lyndhurst on December 24, 1919, and two males from Immarna on October 4, 1921. This species was not common on the desert, but quite numerous in the

Stirling Range, and also around Mississippi Bay, south-west Australia.

Dusky Wood-Swallow (*Artamus cyanopterus*).—A male from Proper Bay, eight miles from Port Lincoln, on March 23, 1920, and a female from Esperance on December 9, 1921; they were fairly numerous.

Black-capped Sittella (*Neositta pileata*).—A female (?) from Koppio, 20 miles from Port Lincoln, on March 15, 1920, and a male from Ooldea on November 16, 1921; this was a young specimen. The species is not numerous at Ooldea.

White-browed Tree-Creeper (*Climacteris affinis*).—A female from Ooldea on October 14, 1921. A note on the type locality of this species was recorded in *The Emu* some years ago.*

Striated Pardalote (*Pardalotus striatus*).—A female from Mount Lyndhurst on December 29, 1919. It was feeding at the top of a eucalypt in the dry watercourse.

Western Silvereye (*Zosterops australasiæ*).—A male and female were collected on Mondrain Island, Recherche Archipelago, on December 4, 1921. The species was moving about in large flocks.

Singing Honeyeater (*Meliphaga virescens*).—A female from Woody Island, Recherche Archipelago, on December 7, 1921. The species was common, not only on the islands but also on the mainland. It is known locally as the "Dairy Bird," but nobody seems to know why. A male was collected at Mount Lyndhurst on December 27, 1920, and another from the plain nine miles west of Ooldea on October 13, 1921; there it was rare and difficult to approach.

Yellow-fronted Honeyeater (*Meliphaga plumula*).—A male from Immarna on October 3, 1921. This species was fairly common on the plain.

White-plumed Honeyeater (*Meliphaga penicillata*).—A male from Mount Lyndhurst on December 22, 1919. It was feeding in a gum-tree which was in full bloom.

Crescent Honeyeater (*Phylidonyris pyrrhoptera*).—A male was collected at Deep Creek, Kangaroo Island, on February 11, 1920. It was a very restless bird and hard to approach.

Yellow-winged Honeyeater (*Meliornis novæ-hollandiæ*).—A male from Birchmore Lagoon, Kangaroo Island, on January 28, 1920, feeding in a eucalypt which was in bloom. A male from Mississippi Bay on December 5, 1920, where they were fairly numerous.

Yellow-throated Miner (*Myzantha flavigula*).—A male and female were collected at Mount Lyndhurst on December 21, 1919. Two males and a female were secured at Immarna on October 1, 1921. The species was fairly common in the Immarna district.

Dusky Miner (*Myzantha obscura*).—A female from Esperance on December 9, 1921.

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* J. R. Kinghorn and H. O. Fletcher, *The Emu*, XXII, 2, 1923, pp. 147-148.

Red Wattle-Bird or Gill-Bird (*Anthochæra carunculata*).—A male from 17 miles east of Cranbrook on November 8, 1921, and a female from Koppio, 20 miles from Port Lincoln, on March 15, 1920. A few small flocks were seen in the Cranbrook district.

Spiny-cheeked Honeyeater (*Acanthogenys rufigularis*).—Two males were secured at Mount Lyndhurst on December 30, 1919, where it was not common.

Australian Ground-Lark (*Anthus australis*).—A male was collected on Rabbit Island, Recherche Archipelago, on October 10, 1921.

Beautiful Firetail (*Zonæginthus bellus*).—A female was collected at Birchmore Lagoon, Kangaroo Island, on January 26, 1920.

Diamond Firetail (*Zonæginthus guttatus*).—A male and female from Koppio, 20 miles from Port Lincoln, on March 17, 1920.

Chestnut-eared Finch (*Tæniopygia castanota*).—A male and female from Mount Lyndhurst on December 20, 1919.

Little Crow (*Corvus bennetti*).—A male from Immarna on October 1, 1921. Eye white; bill and legs black; culmen 1·8 ins.; tarsus 2·1 ins.; tail 7·8 ins.; wing 12 ins.; total length 16 ins. This specimen was shot sitting on the telegraph wire at the railway station. After having searched through the collections, and checked the registers and card catalogues in the Australian Museum, I have failed to find North's type, though one of the two specimens here is marked co-type (A.18559). North described this species from three specimens collected at Moolah, New South Wales, but the one registered under A. 18562 is missing. This should show authors the advisability of recording the registered number of the type of a new species below the description. The bird in question has been missing for some years, as evidenced by the fact that the new card-catalogue, compiled by Mr. Fletcher and myself (commencing in the year 1920) has not brought it to light. I would like to hear from any reader who may have examined the type, and about how long ago that was.—J.R.K.

White-winged Chough (*Corcorax melanorhamphus*).—A male was collected at Koppio, 20 miles from Port Lincoln, on March 13, 1920.

Grey Bell-Magpie (*Strepera versicolor*).—A male from Koppio on March 14, 1920. Only two specimens were seen at Immarna on October 2, 1921, and one was secured. A male and female were collected at Albany on November 19, 1921. There were only a dozen or so in the district, but they were in large numbers 17 miles east of Cranbrook on November 8, 1921, and a female was secured.

Grey Butcher-Bird (*Cracticus torquatus*).—A male and two females were collected at Tulka, eight miles from Port

Lincoln, on March 24, 1920. Isolated pairs seen in the Esperance district, and on December 9, 1921, a male was collected.

White-backed Magpie (*Gymnorhina hypoleuca*).—A young specimen (sex ?) was collected at Kingscote, Kangaroo Island, on January 28, 1920.

Birds from a Coastal Boat.

By W. MACGILLIVRAY, M.D., C.F.A.O.U., Broken Hill, N.S.W.

ON October 19, 1926, I went on board the s.s. *Katoomba* at Port Adelaide, *en route* for Sydney. Very little bird-life was noted other than Silver Gulls (*Larus novæ-hollandiæ*) as we wended our way down the port river, and it was dark when we gained the open water of St. Vincent's Gulf.

Early the following morning, opposite Port McDonnell and within sight of the coast, several Black-browed Albatrosses (*Diomedea melanophris*) and two Sooty Albatrosses (*Phoebetria fusca*) were following the boat. The former soon increased in numbers and were with us for the rest of the day. Later in the morning two or three dark Southern Skuas (*Catharacta lonnbergi*) were in attendance, but not for long. Still later, when off Portland, on the Victorian Coast, a few Prions were seen skimming the waves—probably the Dove Prion (*Pachyptila desolata*) as a small colony nests on one of the rocks in Portland Bay, sharing the rock for breeding purposes with Gannets (*Sula serrator*), Short-tailed Shearwaters (*Puffinus tenuirostris*) and Little Penguins (*Eudyptula minor*). I spent a day investigating this nesting-place in 1900.

A flock of White-fronted Terns (*Sterna striata*) were also seen prospecting the surface of the sea. Evening found us with a number of Black-browed Albatrosses in attendance, also a few Skuas. White-faced Storm-Petrels (*Pelagodroma marina*) were here seen darting over the surface of the sea. They came close to the ship and could be readily recognized.

On the morning of the 21st we found ourselves in the Yarra, at Spencer Street Wharf. A few hours were spent in Melbourne and the boat moved off again down the Yarra at noon.

Silver Gulls were in fair numbers, also a few Pacific Gulls (*Gabianus pacificus*) in full and immature dress. Going across Port Phillip Bay, Silver Gulls were mostly in attendance and a few Black-browed Albatrosses picked us up as we neared the Heads and escorted us into Bass Straits. Early the following morning, with land still in sight, several

Skuas (*C. lonnbergi*) were about the ship. Numbers of Black-browed Albatrosses followed us, also a few Yellow-nosed Albatrosses (*D. chlororhyncha*), two Giant Petrels (*Macronectes giganteus*), and one or two large Albatrosses (*D. exulans*). Silver Gulls were numerous as we came close to land near Cape Everard. The weather was showery, with a moderate sea, and many dark clouds overhung the mountains inland.

After passing Cape Howe, two large Albatrosses (*D. chionoptera*) followed for the rest of the morning, and were often close to and over the stern of the ship. These fine birds have all the head, back, tail, upper and under coverts, and under-surface of the body white; under-surface of the wings white except the tips of the primaries; upper-surface of the wings dark, with white olecranal patch, bill fleshy white. Black-browed Albatrosses have yellow bills, head, neck, rump, and all under-surface white; black and upper-surface of wings dark brown; under-surface of the wings white, bordered with dark brown.

Odd specimens of Giant Petrels came and went. Silver Gulls were numerous as we were close to land, and a few Skuas came to inspect us, followed for a time, and went off. These are bulky birds, with wide, short wings; they are dark brown all over except for a white patch at the base of the primary feathers, showing on the under-surface of the extended wing. Their flight is very hawk-like and they have a habit of occasionally soaring high in the air.

We were attended all the afternoon by many Black-browed Albatrosses and two or three of the larger birds (*D. chionoptera*). These had the tips only of the rectrices black; head, neck and all the rest of the upper-surface of the body white; all the upper-surface of the wings dark brown or black, except the white olecranal patch; all the under-surface of the wings white except the tips, which were dark; bill fleshy white. The Yellow-nosed Albatross (*Diomedea chlororhyncha*) is smaller than the Black-browed (*D. melanophris*) and has darker back, wings and tail; the rest of the upper-surface is white. The wings are also narrower than those of the Black-browed. The bill is black, except for the yellow culmen.

One Cape Petrel (*Daption capense*) came to the ship when we were opposite Montagu Island, but soon left. Some Skuas came and went during the afternoon, and nearer the shore were many Silver Gulls. On the morning of the 23rd we were at Circular Quay, Sydney.

Three weeks were spent in Sydney, where I was joined by my wife, and the voyage up the coast was resumed on September 18 on board the s.s. *Changte.*

Leaving the wharf before noon, the Harbour was traversed at a slow pace. Silver Gulls dominated the bird-life until we emerged from the Heads, when we passed through numbers of Crested Tern (*Sterna bergii*). As the boat turned north we were picked up by several Black-browed Albatrosses. After lunch these were joined by two large specimens of the Snowy Albatross (*D. chionoptera*) in full plumage, and a little later by one Giant Petrel.

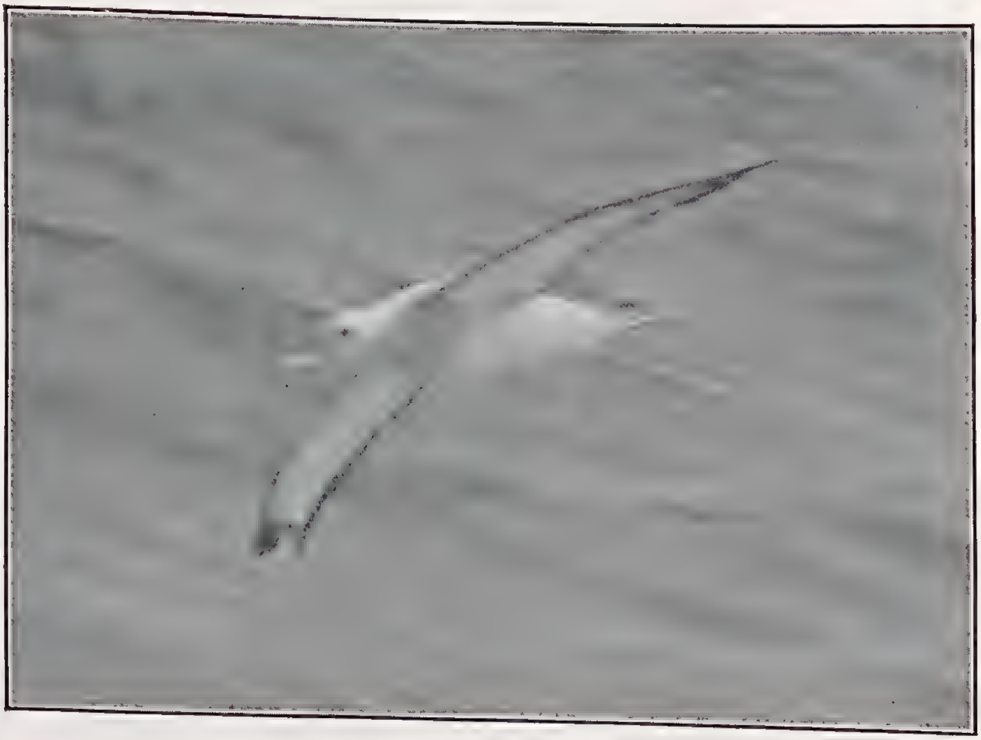
As the day wore on the large Albatrosses became more numerous the Black-browed still maintaining their numbers. Dark Shearwaters (*P. tenuirostris* or *P. pacificus*) were seen searching the surface of the sea. One dark Petrel with white under-surface, about as large as the before-mentioned Shearwater, and a bird of very rapid flight, was seen but could not be identified.

Some of the large Albatrosses (possibly *D. exulans*) had dark tail-feathers, though otherwise they seemed fully adult. The upper-surface of the wing was usually dark or mottled white, with the more conspicuous olecranal patch and the rest of the body white except the tips of the primaries, which were dark. One Sooty Albatross (*Phœbetris fusca*) was seen before dark, when we were off Port Stephens.

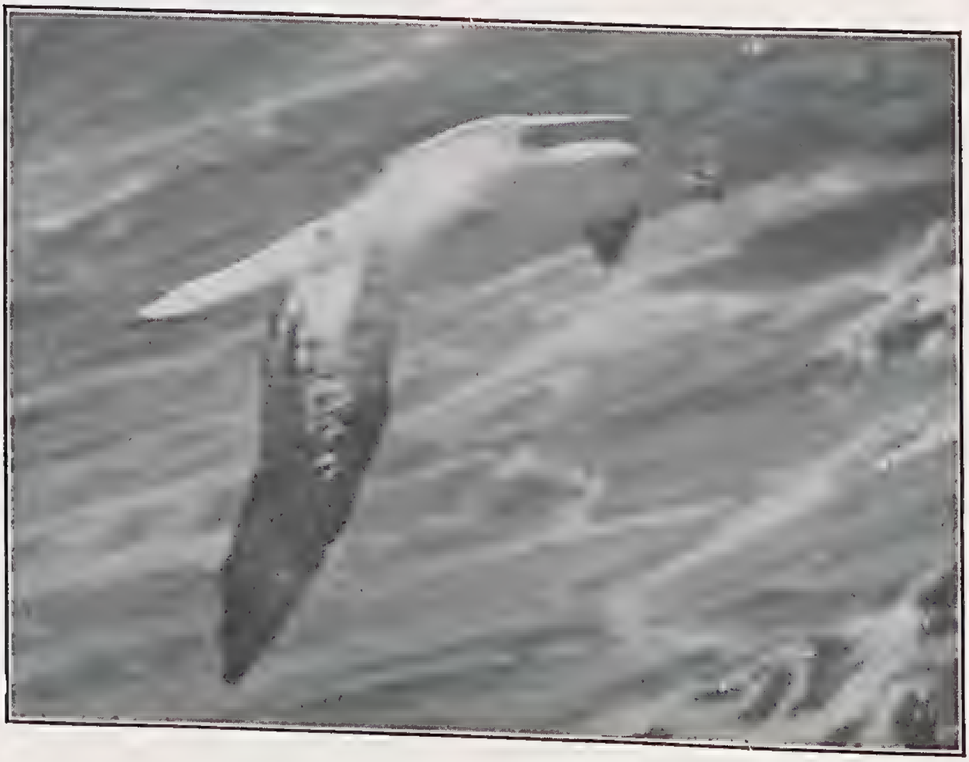
Early on the morning of the 19th we were in the vicinity of Smoky Cape. Before breakfast we were still being attended by numbers of Black-browed and Snowy Albatrosses (*D. chionoptera*) all the latter with white rectrices except one, which was in immature brown plumage. One Sooty Albatross also followed. The immature bird had all the upper-surface dark brown, except the anterior half of the head and throat, which was white; bill flesh-coloured; band of brown across the fore-chest; the rest of the under-surface white; under-wing white except the tip, which was brown.

One or two specimens of Albatrosses came into the crowd during the morning. These birds seemed smaller than the Black-browed when seen flying. Head and neck were white; upper-surface of the wings and back dark brown; rump white; tail dark brown or black; under-surface of the wings broadly margined with black; bill yellow, with black tip. At noon we were in latitude 29° 57″ S., longitude 153° 19″ E., 270 miles from Sydney. In the afternoon the immature phases of *D. chionoptera* increased.

South Solitary Island, with its lonely lighthouse and keeper's quarters, was passed late in the afternoon. Numbers of Gannets (*S. serrator*), were seen fishing, several in pairs, and as there are other islands in the vicinity it is quite probable that this species nests on one of them. Some Terns, probably *S. bergii,* were harrying shoals of surface-swimming fish; the birds were too distant to be identified with certainty. Shearwaters were in flocks when near the coast, and odd ones were seen all day—probably *P. pacificus.*



SNOWY ALBATROSS, TASMAN SEA. (Note the damaged right wing-tip.)



SNOWY ALBATROSS. (Probably immature.)

Photos. by E. F. Pollock.

Next day the numbers of Black-browed Albatrosses had lessened considerably; the concourse following was mostly made up of *D. chionoptera* in all stages of plumage, with one Sooty Albatross and one small Albatross with yellow bill and black tip, otherwise coloured similarly to *D. chlororhyncha*—possibly an immature stage of this species. After lunch we were nearly opposite Byron Bay and near a low sandy shore with an inland range. Albatrosses were not so numerous, and were mostly Snowys in various stages of plumage.

Two may be described:—

(1) All body, head, neck, and tail ruddy brown; darker on the upper-surfaces of the wings; under-surface of body, neck, and tail ruddy brown; under-surface of wings white, except the tips, which were brown.

(2) Upper-surface of the wings mottled; body white; upper and under tail-coverts white, rectrices dark brown; bill fleshy; under-wings white except the tips, which were brown.

The rectrices were white in the majority of the others. There were only two Black-browed Albatrosses and one with yellow, black-tipped bill and having almost all the under-wing dark, with a light central stripe; probably this was an immature Black-browed. One Sooty Albatross and one Skua (*C. lonnbergii*) were also noted.

Late in the afternoon, when opposite the mouth of the Richmond River, several Snowy Albatrosses were still with us. Crested Terns and Shearwaters were searching the sea.

We passed into Queensland waters about midnight, and woke next morning to find ourselves in the Brisbane River. The ship anchored at Pinkenba to take meat on board for China. The city was reached by train, the Botanic Gardens inspected, and the city and its surroundings viewed from One Tree Hill. I had never seen the place so dry, and everyone was complaining of the want of rain. We resumed our journey northward at about 10 p.m., and woke on the 21st to find that we were steaming along a low sandy shore, which continued until we passed Sandy Cape at about 1 p.m.

Very little bird-life was seen during the morning. A pair of Brown-winged Terns (*S. anæstheta*) and later two Wide-awakes (*S. fuscata*) were noticed, and still later two Snowy Albatrosses followed the ship for scraps. By four in the afternoon these had increased to nine. They were still in the wake of the boat at dark. A few Mutton-Birds were searching the surface.

Next morning we woke passing through the Northumberland Group. These are large land islands and mostly uninhabited. Snowy Albatrosses were with us all day. Five or six in all stages of plumage kept about the ship until we entered the Whitsunday Passage at dusk in latitude 20° S., longitude 149° E.

We anchored at Townsville at 7 a.m. Here we heard further complaints about the dryness of the season. A drive around the town and an inspection of the local Botanic Gardens revealed much of botanical interest. Birds were fairly plentiful, the introduced Indian Minah (*Acridotheres tristris*) and Indian Dove being all over the place. Honey- and fruit-eating birds were attracted to the Gardens by the flowering Moreton Bay chestnuts, fruiting figs and the plum-like fruits of *Terminalis melanocarpa.* Common Friar-Birds (*Philemon corniculatus*) and Yellow-throated Friar-Birds (*P. citreogularis*) were numerous, also Orioles (*O. saggittatus*), Fig-Birds (*Sphecotheres vieilloti*), Blue Mountain Lorikeets, and Silvereyes (*Zosterops lateralis*). Bell-Magpies (*Strepera graculina*) in a flock I at first glance mistook for Choughs, as they were walking on the ground. Coconut-palms and mangoes were a feature of the vegetation, and were fruiting. The weeping fig (*Ficus hillii*), a fine ornamental and shade tree, is a native of Queensland.

On the morning of September 24 we found our way into Cairns Harbour, by a long shallow passage marked by beacons. An early lunch on the boat enabled the passengers to go by train to Kuranda, to spend an hour there. Showery weather spoiled an all-too-brief visit, as there was much of interest in the local vegetation and Mr. F. P. Dodd's wonderful collection of insects. Very few birds were seen; Rainbow-Birds, Sacred and Forest Kingfishers, Sulphur-crested Cockatoos and Sun-Birds were mostly seen from the train. We had to leave Cairns again at 6 p.m., and found ourselves passing the islands beyond Cooktown early next morning.

Flocks of Nutmeg Pigeons (*Myristicivora spilorrhoa*) were seen flying in towards the land; these seemed to be on their southward migration. Very few sea-birds were about, but later on we saw a few Brown Gannets (*Sula leucogaster*), Lesser Terns (*Sterna bengalensis*), and Great Crested Terns (*S. bergii*). Roseate Terns (*S. dougalli*) and Reef-Herons (*Demigretta sacra*) were in numbers on many of the coral islets and reefs passed during the day. We were about level with Cape Grenville by nightfall. Early morning of September 26 found us passing Albany Island on the outside and so entering Torres Strait.

The sea was beautifully calm and birds more numerous, especially the Lesser Crested Terns and Silver Gulls. Several Red-backed Sea-Eagles (*Haliastur indus*) were passed as we wended our way among the islands. We anchored at Thursday Island wharf at about 9 a.m. Two days were spent on the island awaiting the return boat. Silver Gulls were plentiful along the foreshore and very tame. A Sea-Eagle (*Haliæetus leucogaster*) was seen to fly into the forest on the island, where it probably had a nesting-site. Helmeted Friar-Birds and Yellow-throated Friar-Birds were frequent in the coco-palms and other trees. Flocks of Rainbow-Birds (*Merops ornatus*) kept flying over towards the mainland at intervals all day, evidently on their southward migration. Flocks of Nutmeg Pigeons were also seen passing in the same direction.

Early next morning, whilst waiting on board the *Taiping* to commence our return journey, the water about the boat was seen to be swarming with small, sardine-like fishes, which were constantly being harried from below by larger fishes. A Malay in an anchored dingy was fishing for the larger ones, using the small fish as bait. The latter were put on the hook alive, and every now and then the fisherman threw a handful of crippled ones into the water to attract the larger ones. Lesser Crested Terns were hovering over the ship in numbers, attracted by the shoals of little fish, and they frequently dived for the crippled ones thrown in by the Malay. An immature Sea-Eagle patrolled the mirror-like sea between Thursday and Prince of Wales Islands, and, just as we were leaving a fine mature bird soared overhead. On our way out of Torres Strait and through Albany Passage many Lesser Crested, Roseate and Bridled Terns were seen fishing. Reef-Herons were on al the small islands. Early on the 29th we passed the islands opposite Lloyd's Bay and Point Direction. Very little bird-life was seen from the deck.

Arrived at Cairns on the 30th, we went to the Mulgrave sugar mill, where we were shown over the works. Along the banks of the Mulgrave River were several fine Moreton Bay chestnuts in flower, attracting numbers of Blue Mountain Lorikeets, also Helmeted and Little Friar-Birds, to their honey-laden blooms. Peaceful Doves (*Geopelia placida*) were everywhere, feeding on the ground, mostly in pairs. Rainbow-Birds were on every point of vantage, Red-browed Finches (*Ægintha temporalis*) were in small flocks. Fig-Birds and Orioles were busily engaged in building nests. A flock of Sulphur-crested Cockatoos (*Kakatoe galerita*), was feeding on one of the ploughed cane-fields.

Very few birds were observed from the boat on our way to Townsville, where we found ourselves early next morning.

One of the first birds seen ashore was a Red-backed Sea-Eagle sitting quietly on a stump on the muddy edge near the wharves. In the Botanic Gardens a small flock of Banded Finches (*Steganopleura bichenovii*) was seen, as well as the birds enumerated on our way up. Waiting to go back to the boat, I noticed a few birds on the muddy margin of Ross Creek, among them a Golden Plover (*Pluvialis dominicus*), a Sand Dotterel (*Ochthodromus geoffroyi*) and a Curlew Sandpiper (*Erolia testacea*).

The *Taiping* got away at 1 p.m., and after leaving Cleveland Bay a small coral islet was passed on which were numbers of Terns, not near enough to be identified with any certainty. There was very little bird-life over the sea. Early on October

2, we found ourselves passing between the Northumberland and Goldsmith groups of islands. One Frigate-Bird (*Fregatta minor*) flew over the ship, and a few Crested and Lesser Crested Terns were harrying shoals of fish. Going up the Brisbane River many Pelicans (*Pelecanus conspicillatus*) were disturbed, also one large flock of Ducks (*Anas superciliosa*). Cormorants—Pied (*Phalacrocorax varius*), Little Black (*P. ater*), and Little Black-and-white (*Microcarbo melanoleucus*)—were here and there all along the river, swimming or perched on points of vantage. In the Brisbane Botanic Gardens some of the flowering trees were crowded with honey-eating birds; Friar-Birds (*P. corniculatus*) were very numerous, also Silvereyes (*Zosterops lateralis*) and Southern Fig-Birds (*Sphecotheres vieilotti*).

Leaving later the same day we made our way slowly down the river. Three Whistling Eagles (*H. sphenurus*) were searching the mud-flats, with one Sea-Eagle (*H. leucogaster*) high over all. Near the electric power-station an Egret (*H. timoriensis*) was prospecting a mud-flat. Larger mud-flats were attended to by numbers of Sea-Curlews (*Numenius cyanopus*), Whimbrels (*N. phæopus*), and a lot of smaller waders that could not be identified. A party of White Ibis were probing a shallow towards the mouth of the river. Lesser Crested Terns became more numerous as we went down.

Before coming to Moreton Island, several Brown Gannets (*Sula leucogaster*) in immature and adult dress were flying close to the steamer, and four were perched on a beacon. A large, fully-plumaged Sea-Eagle was being harried by a number of Terns as she made her way along the side of Moreton Island. Large numbers of Crested Terns, Lesser Crested Terns, and other smaller Terns, too far off to be identified, were in attendance on shoals of fish. We made our way round Moreton Island before dark and awoke next morning to find ourselves in a smooth sea.

Numbers of Shearwaters (probably *P. pacificus*), were skimming the surface of the sea, and one was again seen with dark upper and white under-surface. We passed South Solitary Island before breakfast. One Albatross (*D. chlororhyncha*) was with us then, and was soon joined by two others of the same species and later by one Snowy and one Black-browed Albatross. Many Gannets (*S. serrator*) were again seen in this neighbourhood. After breakfast ten Albatrosses were behind the boat, mostly *D. chionoptera* and *D. chlororhyncha.* At noon, when opposite Smoky Cape, the Albatross escort consisted of the same three species, the Snowy predominating. During the afternoon this species increased in numbers. None had all white rectrices, these being in every instance brown, and several of the birds were in early all-brown plumage. There were also one or two Black-browed and one Yellow-nosed Albatross.

In Sydney Harbour next morning large and small Black Cormorants were seen, also a few Crested Terns and Silver Gulls.

The voyage was resumed on October 8. After leaving the Harbour and turning south many Albatrosses were soon in attendance. These were mostly Black-browed and Snowy, with a few Shearwaters skimming the waves. By the time we were opposite Botany Bay the Albatrosses had greatly increased in numbers. Early next morning numbers of Snowy and Black-browed Albatroses were with us; very few of the former had all-white rectrices. Two Giant Petrels were with the escort. Two Cape Petrels attended for a while, and Shearwaters in increasing numbers were searching the surface of the sea. We passed Montagu Island early and Silver Gulls came out and followed us for a time. By the time we were opposite Twofold Bay the Shearwaters had doubled their numbers.

We passed Gabo Island and the Victorian border in mid-forenoon, encountering a strong headwind as we began to steer a more westerly course. The mob of Albatrosses had almost entirely left, only three Snowys, two Black-browed, two Giant Petrels and a few Gulls being with us. Enormous flocks of Shearwaters covered the whole surface of the sea. We passed Cape Everard early in the afternoon. The same two Giant Petrels had followed us from opposite Bega to Gabo Island and then left us. Three more came to us later in the afternoon, also three Snowy Albatrosses and only two of the Black-browed species. There were numbers of Gulls, Prions, and Short-tailed Petrels.

On October 10, I was up early to a cold and bleak morning, with a moderate sea and occasional showers of rain. No birds were seen until after 9 a.m. when two Shy Albatrosses (*D. cauta*) came along in the vicinity of Cape Schank. These Albatrosses were larger than the Black-browed or Yellow-nosed, and had a colour-pattern more resembling that of the large Albatrosses of the wandering type. The upper-surface of the wings and back is brown; head white or greyish-white, rump white; tail dark brown; under-surface white; all under-surfaces of wings white, except the slightest dark border and slight dark tip; bill and feet fleshy colour.

Before reaching Port Phillip Heads, and when we slowed down to take the pilot on, we passed through immense flocks of Short-tailed Shearwaters flying and resting on the water. There seemed to be millions of these birds, the water being almost black with them. Two Giant Petrels came close to the ship whilst she was waiting for the pilot, and one Black-browed Albatross went with us through the Heads into Port Phillip Bay. Several Shy Albatrosses, that had been with us from Cape Schank, now left. This species does not seem to range far along the coast. As we passed down the bay, many Gannets (*S. serrator*) were seen resting on the water, only a few flying. Black, Little Black and White-breasted Cormorants were on buoys and other points of vantage. Pacific Gulls met us about half-way down, and there were others about Williamstown and the mouth of the Yarra, where more Cormorants lined the breakwater.

Arrival at Newport ended all sea-bird observations. We went on to Adelaide by train. When there I visited the Museum and was shown by Mr. Sutton some Albatross skins recently obtained (after a storm) by Professor Wood-Jones. These were two mature and one immature *D. chlororhyncha,* two Giant Petrels, and two Skuas (*C. lonnbergi*).

* * * *

The accompanying plate will help those who go to sea in ships along our coasts to identify the principal light-coloured Albatrosses that follow or come alongside.

Birds in immature plumage will always present a difficulty, as the various changes from youth to full maturity, a matter of perhaps three or four years, are not well known even to experts. Unfortunately, most of our experts who write about the Albatrosses have obtained most of their knowledge from museum specimens.

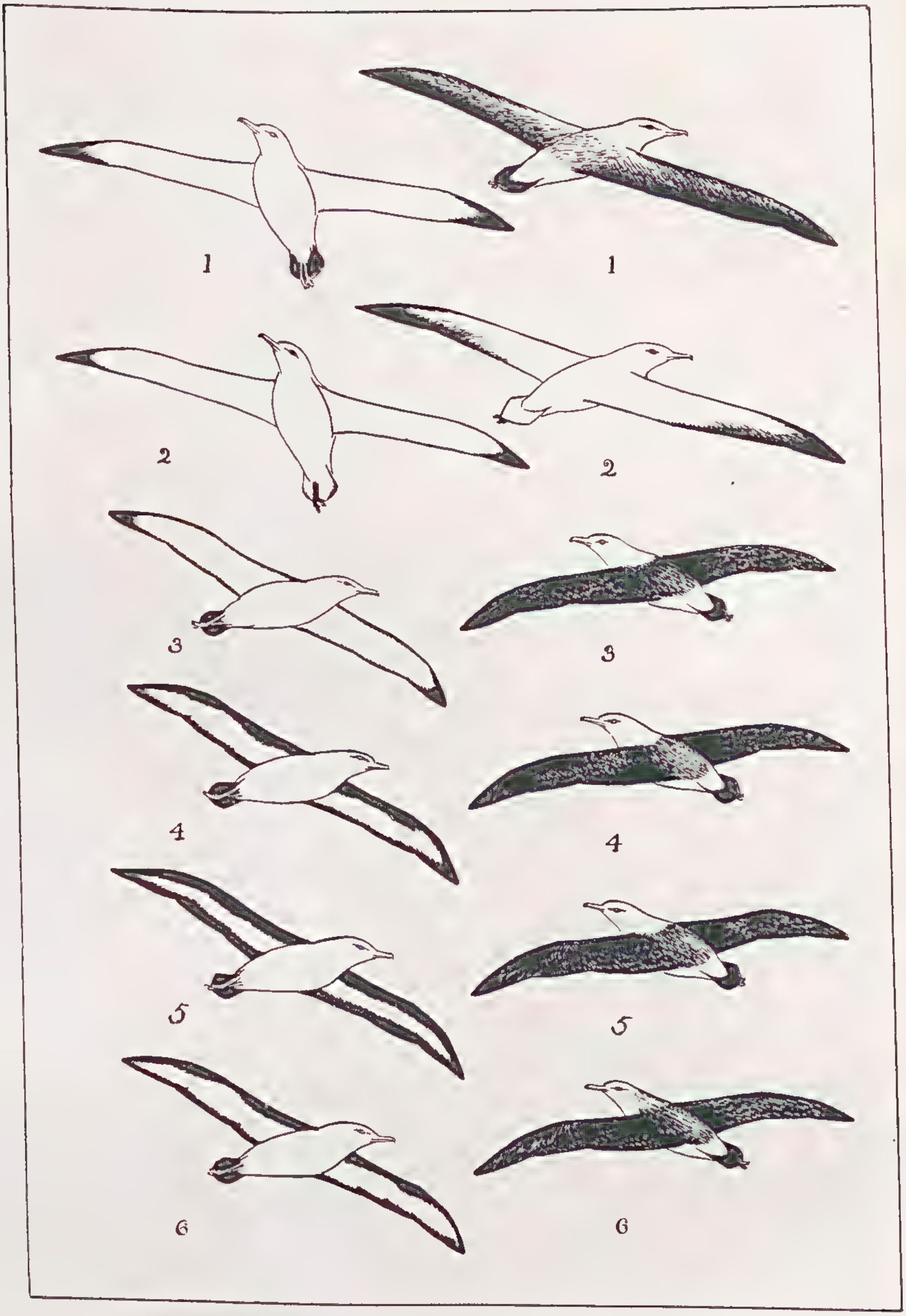
The breeding-grounds of our southern species have not been investigated by any authoritative ornithologist for a sufficient time to enable an opinion to be expressed as to the plumage changes which take place.

The plate shows the under- and upper-surfaces of the following six species, the last being much the rarer:—

1. *Diomedea exulans.*
2. *Diomedea chionoptera.*
3. *Diomedea cauta.*
4. *Diomedea melanophris.*
5. *Diomedea chlorohyncha.*
6. *Diomedea chrysostoma.*

The first two species are very large birds. I saw one specimen of *D. exulans* in Cape Town Museum which measured 14 feet across the outstretched wings. The Snowy Albatross is much lighter in the colour of its upper-surface, but carries the same pattern and has white tail-feathers. In *D. exulans* the tail-feathers are dark brown. The under-surface pattern will be seen to be the same in both.

D. cauta has the under-surface pattern of the first two, but resembles the smaller Albatrosses or Mollymawks in its upper-surface. Its bill is also flesh-coloured, like those of the first two. Mr. G. M. Mathews, noting these and other resemblances to the *exulans* group, has placed it in a separate genus—*Diomedella.* The last three species, often spoken of as Mollymawks, are alike in upper- and under-colour patterns. No. 4 has an all-yellow bill, and is the most plentiful species,



UNDER SURFACE. UPPER SURFACE.

1. WANDERING ALBATROSS, *Diomedea exulans.*
2. SNOWY ALBATROSS, *Diomedea chionoptera.*
3. WHITE-CAPPED ALBATROSS, *Diomedea cauta.*
4. BLACK-BROWED ALBATROSS, *Diomedea melanophris.*
5. YELLOW-NOSED ALBATROSS, *Diomedea chlororhyncha.*
6. GREY-HEADED ALBATROSS, *Diomedea chrysostoma.*

NATIONAL MUSEUM [illegible]

D. chlororhyncha seems to be the commoner of the last two on our coasts. It is somewhat smaller than *D. melanophris,* and the dark brown or black of its colour-pattern is darker than in the last-named species.

The Sooty Albatross is distinguished from all these by its all-black or dark-brown colour, and can be confused only with the Giant Petrel. The latter is a bulkier bird with a larger and light-coloured bill, its greater size being due to the double tubes of the nares being continued along the culmen.

Impressions of Bird-Life Between Perth and Adelaide.

By D. L. Serventy, R.A.O.U., Perth, Western Australia.

In December, 1926, I had occasion to participate in a motor trip overland from Perth to Adelaide, *via* Coolgardie, Norseman, Balladonia, Eucla, Fowler's Bay and Port Augusta. The nature of the journey promised to afford an unusually good opportunity of forming an acquaintance, though sketchy, of the more obvious animal life of the region. As events turned out, however, my natural history observations were considerably more abbreviated than I had anticipated.

Much to my regret the duration of the trip was curtailed, each day's travelling being made so lengthy that only the minimum of time could be devoted to any sort of investigation, and the stopping-places and the high average speed which had to be maintained militated against effective observations from the car. Consequently, any impressions gathered of the country and of its denizens were hardly likely to be a faithful reflection of conditions as they really were. The distance covered was about 1,800 miles and the time taken 10½ days, from December 11 to 21.

Broadly considered, the area traversed can be divided into three great regions, the western woodland area, extending as a fairly well-defined entity to about Balladonia, whence it begins to merge into the treeless, limestone plains which straddle the borderline, and, thirdly, the South Australian timbered country. The distinctive bird-elements of the east and west are localized in the main in the two forest areas. The limestone plains offer a distinct regional barrier between them. For the most part arid and shelterless, they are populated by an eremean fauna common to both States. My own contribution to the distribution of species in these parts is, however, very meagre. On comparing the notes which follow with the accounts of C. G. Gibson (*The Emu,* Vol. IX, p. 71) and F. Lawson Whitlock (*The Emu,* Vol. XXI, p. 170) of the birds of the west and those of S. A. White and J. Sutton of the birds of the east, it will be appreciated how only the most obvious species came under my hurried attention. Instead of regretting my limited opportunities, however, I must express pleasure at being able to do the little I have done.

I.—THE WESTERN WOODLANDS.

The first stage of the trip, from Perth to Merredin (162 miles), passed through the jarrah-clad Darling Range—really a low fault scarp—and the wandoo (*Eucalyptus redunca*) woodland, which succeeds the jarrah. Towards York the country assumes a new appearance, heightened by the artificial aspect following on years of settlement. The wheat-belt prevails all the way to Burracoppin (a few miles east of Merredin), after which the virgin bushland generally comes into its own again. Through this zone, and persisting to the confines of the woodland region already indicated, persists a light eucalypt growth, frequently massing into forest formation, and at other times being more open and characterized by mallee types. Prominent amongst them is the salmon gum (*Eucalyptus salmonophloia*) and the gimlet (*E. salubris*). In the goldfields' area occurs the redwood (*E. transcontinentalis*) and the merrit (*E. flocktoniæ*). A darker-barked species of gimlet (*E. dundasi*) appears around Norseman and to the east, while various blackbutts are common throughout.

On our first day out shrieking flocks of the only Lorikeet found in the south-west, the Purple-crowned species (*Glossopsitta porphyrocephala*) were noted in the jarrah, and became more numerous as we entered the wandoo. West of York the Western Rosellas (*Platycercus icterotis*) were observed, also Magpie-Larks. During the lunch-hour stop in the town itself were noted the Black-and-white Fantail, Tree-Martin and a small Hawk, probably *Astor fasciatus*. During the course of the afternoon's run to Merredin Kestrels were often encountered, and others of frequent note were Black-and-white Fantails, Pipits, Magpie-Larks, Magpies (*Gymnorhina dorsalis*), Crows, Tree-Martins and Twentyeight Parrots (*Barnardius semitorquatus* or *zonarius*). Other species observed less often were the Western Rosella, White-faced Heron, Black-faced Wood-Swallow (*Artamus melanops*), Yellow-tailed Tit, Red Wattle-Bird, and, at Tammin, a Peregrine Falcon (*Falco peregrinus*). The Merredin bird-list contained the Twentyeight Parrot, Welcome Swallow, Red-tipped Diamond-Bird, Yellow-tailed Tit, Pipit and the Magpie-Lark (which was not seen henceforth).

From Merredin to Coolgardie, southwards to Norseman and thence out towards Balladonia the same natural conditions obtain, as was to be expected when our route approximated to the 10-inch isohyet. Soon after leaving Merredin a Twentyeight Parrot flew across our track, and during the morning's run we observed Magpies, Crows, Kestrels, Pipits, and a Black-faced Cuckoo-Shrike. A Kingfisher (*Halcyon* sp.) was seen perched on the telegraph line, and an Emu and young were reported. The midday stop at Southern Cross (237 miles from Perth) added the Black-and-white Fantail to the day's list. Magpies were also seen. About 62 miles eastward of Southern Cross a short stop enabled me to identify a small party of White-backed Swallows (*Cheramœca leucosterna*) fossicking around. Suitable nesting places for them in the vicinity were the pits excavated under the joints of the pipe-line for the Goldfields' water supply, but a hasty examination of a few of these failed to reveal any likely nesting-holes. Near Coolgardie (351 miles from Perth), Banded Plovers (*Zonifer tricolor*) were calling, and our arrival in the old mining town, which is now a mere shell to what it was in the roaring days of the 'nineties, was heralded by the calls of Grey Butcher-Birds (*Cracticus torquatus*). The second night was spent here. A walk around the town in the morning only added one new species to the list, a pair of Black-fronted Dotterels parading the edge of a dam.

Coolgardie is situated in hilly country, fairly well wooded with the typical eucalypts of the eremea, and the characteristic red soil sparsely grown with saltbush and occasional spinifex. In one of his books, Mr. C. E. W. Bean writes interesting of the red country—the inner Australia he calls it, the core of the land, the real red Australia of the ages. Indeed, right from the Western Australian wheat-belt over the back country of the State, coating the limestone of the Nullarbor Plain, and into South Australia, we travelled over a red country. On it flourishes the "old man" saltbush (*Atriplex nummularium*), which we looked at unceasingly from Coolgardie almost to Port Augusta, and, now and again, spinifex. In the west, as far as the rainfall and edaphic conditions allowed, the red region bears a light forest of eucalypts, becoming scantier and practically vanishing around the margin of the Bight till it abounds again east of the Nullarbor Plain in South Australia.

Despite its vegetation, eastward from Southern Cross one remarks on the aridity of the country, it being reflected in the scarcity of animal life, or such of it as obtruded itself on our notice. After crossing the Avon River at York we met with no running stream until the watercourses flowing from the Flinders Range, north of Adelaide. Standing water there was none, except following rain at Coolgardie, and in one or two salt-pans. Following good rains, however, the country is stated to bloom like a garden with ephemeral vegetation.

On the third day out, from Coolgardie southward to Norseman, a distance of 110 miles, I was first impressed with the universality in this region and henceforth of one of its feathered denizens, the Brown Weebill (*Smicrornis brevirostris*). Its little notes were heard at almost every stopping-place, and further observation revealed the tiny birds in small flocks. Thirty miles out of Coolgardie a party of Purple-crowned Lorikeets were noted, and several species were identified during a halt ten miles further on. In the mallee thickets I obtained a specimen of the Chestnut-tailed Tit (*Acanthiza uropygialis*). Other species observed were the Weebil, Black-faced Wood-Swallow, Wedge-tailed Eagle, Grey Butcher-Bird, and I heard, I think, the Golden Whistler (*Pachycephala pectoralis*). We lunched at Widgiemooltha, an old-established mining town, 52 miles from Coolgardie, and on its outskirts noted a Black-faced Cuckoo-Shrike. The road to Norseman skirts the large expanse of Lake Cowan, one of a chain of salt lakes in the district. Lake Cowan was dry, but its glistening saline surface shone in the sun and gave a striking illusion of water. The eucalyptus trees show signs of more vigorous growth as Norseman is approached, and the well-wooded groves continue for many miles eastward. Parrakeets were observed on several occasions, and once a male Scarlet Robin (*Petrœca multicolor*) and a pair of Rainbow-Birds (*Merops ornatus*). Grey Butcher-Birds were heard in the township.

On the fourth day we had before us a particularly long stage—216 miles of travel almost due east, through Fraser Range and Balladonia stations, to a wayside tank, 70 miles from Balladonia homestead. The well-wooded country continues well on to Balladonia, but as this station is approached the dryness of the region is evidenced in a lesser tree-growth and the appearance of larger and larger areas of plain-land, set at first like oases in the forest, but ultimately dominating the landscape till at length the eucalypt element practically loses its identity in the south-western fringe of the Nullarbor Plain. Parrakeets were noted on the run out to Fraser Range, 64 miles out—a low, broken line of hills, scrub-covered and of desolate appearance. It has been worked as a sheep station for many years. In the paddocks were observed Banded Plovers and Pipits. Several of the gum trees hereabouts are adorned with aboriginal carvings, boomerangs and other devices being done in the bark. Continuing on from Fraser Range we heard Grey Butcher-Birds and Red-tipped Diamond-Birds, and at Newman Rocks, 89 miles out, a granitic outcrop where a well has been sunk, a few cypress pines (*Callitris verrucosa*) were noticed. We stopped for our first *alfresco* lunch six miles beyond, where I obtained specimens of the Broad-tailed Tit (*Acanthiza apicalis*) and a Brown Flycatcher (*Micrœca fascinans*), the first noted. A party of White-browed Babblers (*Pomatostomus superciliosus*) chattered in the bushes, and in the treetops I saw a Black-faced Cuckoo-Shrike. From its nesting tunnel right on the side of the track I flushed a Rainbow-Bird. Weebills and Red-tipped Diamond-Birds were heard, and an Eagle soared above. At the Afghan Rocks, 126 miles from Norseman, Crows were seen, and at about four o'clock in the afternoon we made Balladonia station. The homestead is in the middle of a saltbush plain, where we noted Crows and Singing Honeyeaters (*Meliphaga virescens*). We also saw in the distance a flock of birds which had every appearance of being Magpies. If that identification was correct they were the last to be seen till another species was met with in South Australia, the previous "last-point" being Southern Cross. We drove on to the 70-mile tank in the evening, through alternate saltbush plains and eucalypt woods, doing the latter part of the stage under the light of our head-lamps. At a tank 42 miles out a pair of Banded Plovers were seen.

II.—THE PLAIN COUNTRY.

The 70-mile tank is situated in a belt of eucalypt trees and mallee at the edge of the rapidly-increasing plains, which on the succeeding day's run entirely overshadowed the wooded region in relative importance. Before retiring I had set out some traps for small mammals, but they remained unsprung. Apart from a few rabbits and an odd dingo, nothing was observed of any mammalian life. In the morning when I awoke Black-and-white Fantails, Golden Whistlers, Crows, Grey Butcher-Birds and Black-faced Cuckoo-Shrikes were calling, and a saunter around the camp added the following to the local list: White-browed Babbler, Pipit, Dusky Wood-Swallow (*Artamus cyanopterus*), an undetermined Hawk, and an unseen song-bird whose note was syllabized as "Wit-wit-*wit.*" A White-shouldered Caterpillar-eater came under notice after we resumed travel. As we drove on in the course of the morning the mallees diminished in extent, and soon there were only clumps of mulga on an extensive plain—the south-western edge of the Nullarbor Plain.

About 60 miles from camp our path was crossed by a pure white dingo, which eyed us curiously as we passed but loped off when the car stopped. Several dead dingoes were noticed along the track. Crows were seen making a meal of one carcase. A stop for lunch was made in the plain about 122 miles out. In a small ridge of mallee and mulga near at hand I came on a party of Babblers and heard Crows and Red-tipped Diamond-Birds. The whole country was silent, lifeless and depressing. The shells of dead land-snails were very numerous, and I collected five species in this region. Some thirty miles further on we came to the scarp of the Hampton Range, which is the inland deviation of the line of cliffs bordering the Great Australian Bight from Israelite Bay to the head of the Bight. From Twilight Cove to Eucla the line of cliffs retreats inland, and seen from the south appears as a low range extending about 30 miles from the coast. Unfortunately, at no place did we have a chance of viewing the precipices fronting the ocean, though at Eucla we caught a glimpse of the steep cliff-face away to the east.

To return to the scarp. To us the view from the top was enchanting. It had been a dusty afternoon, and as we gazed through a break in the mallees we thought we looked on an expanse of ocean—the dust merged the saltbush into an illusion of grey-blue waters. We descended to the plain below—the Roe Plains—by way of the Madura Pass ("Mādoor," the natives of Eucla called it), a very rocky and precipitous gorge. The vegetation, mulga and saltbush, is identical with what obtains on the tableland. Madura is 117 miles from Eucla, and though we reached it in the mid-afternoon we aimed to make for the latter point to spend the night. Bird-life was scarce to a degree, with one outstanding exception. Wedge-tailed Eagles were constantly seen so long as daylight lasted, soaring over the summit of the escarpment. Over Mundrabilla homestead, for example, there were four Eagles flying. Two other species of *Acciptrines* were noted as well.

Eucla was reached late on the evening of the fifth day. December 15, and a resumption of the journey was not made till the following afternoon. At the time of our visit the telegraph station was under sentence of doom, for by the following May the new line, along the Great Western railway, would be in commission, and a commencement would be made with the transferring of the staff and dismantling of the old station—Eucla was established in December, 1877—leaving a few natives and the encroaching sand-dunes in full possession. The latter flank the beach around the bay to a distance inland of about a quarter of a mile, and are steadily working further—a direct result, I was told, of the rabbit invasion and the consequent destruction of the binding vegetation. Already the sand has covered up part of the jetty and a tramline. Climbing over the dunes early next morning I noted rabbit-bones strewn everywhere, and petrified plant-roots were also in evidence. The only bird-life on the beach was a pair of Pied Cormorants (*Phalacrocorax varius*), which I was able to approach close enough to distinguish the orange lores. From the present limit of the dunes there is a strip of about 200-300 yards of a brown-coloured samphire, and after a sharp line of demarcation the grey "old man" saltbush of the plains commences, and mingles with a tract of very stunted mallees.

On the return from the beach a couple of Pipits were noted in the samphires, also some of the charming little Orange Chats (*Epthianura aurifrons*). Swallows were flying around the station buildings, and Singing Honeyeaters and Crows were heard. A Brown Hawk (*Falco berigora*) shot a day or two before by one of the operators, was shown me. Later in the morning I made a sortie in the neighbouring bush, to the westward, where Weebills, White-browed Babblers, a Kestrel and Singing Honeyeaters were observed. On one occasion a small brown bird broke cover but rapidly flew into another clump of saltbush. A little later I was successful in obtaining a pair of them, which were hopping among the twigs of a low mallee. It was with some difficulty that the specimens were identified as Redthroats (*Pyrrholæmus brunneus*). Both were identical in plumage and lacked the red throat-patch. The few specimens collected on the trip were preserved over the journey for skinning later by injections of formalin. Though some fared tolerably well the Redthroats became too mummified to allow of their sex to be detected on dissection.

We took leave of Eucla at 2.30 in the afternoon and camped for the evening 68 miles out. The cliffs were ascended four miles from the telegraph station and the border into South Australia was crossed nine miles from it. Our route at first lay through thickets of mallee and mulga, but after 20 miles or so this vegetation had almost ceased and the treeless character of the plain re-asserted itself. We were pursuing a course too near coastal influences, however, to be in the treeless region proper, and though the trees were extraordinarly scanty, at no point could it be said that they were completely absent. Just before we left the border a Black-faced Cuckoo-Shrike was seen; but except for a Hawk no other bird-life was in evidence. We camped at a tank 68 miles from Eucla, a dismal spot in the vast expanse of plain-land, which was slightly relieved by stunted mulga dotting the saltbush. We had to pick up firewood on the way to get a sufficiency of it. There was a cold wind blowing from the south and a gloomy sky overhead. The only life apparent was a pair of Swallows, which had made their home in the shed covering the tanks. The traps were set again that night, but with no result. There was no bird-chorus to greet the dawn when we awoke, but during a walk after breakfast I managed to obtain an Eastern Whiteface (*Aphelocephala leucopsis*) in some mulga, and thought I heard Babblers and a Singing Honeyeater. We left the camp early—6·15 a.m. Perth time—and a little way out noted a Wedge-tailed Eagle. The trees continued to fade more and more out of the landscape till after Nullarbor station (120 miles from Fowler's Bay), and White Wells station (six miles further east), they practically died out, with the exception of skeleton trunks sparingly distributed around the horizon. At Nullarbor station Swallows were seen, also a small party of White-fronted Chats. The manager of the property drew a depressing picture of the havoc caused by climatic conditions—they were at the time in the middle of a drought—and of the predations of dingoes. At the northern boundary of his run, he averred, eight miles away, the saltbush was dying.

III.—THE SOUTH AUSTRALIAN FOREST BELT.

About 100 miles from our camp of the morning sands commenced, and some 20 miles further eucalypts (large trees and mallee) appeared. At the Nanwoora sands—negotiated easily—I heard Singing Honeyeaters, Crows, and, I think, a Red-tipped Diamond-Bird. We now entered pastoral country or grazing paddocks all the way to Fowler's Bay and the first signs of grass in any quantity on the trip. These first indications of settlement in South Australia were hailed with interest, and on inquiry of the first human beings we met, some blackfellows in a springcart, we learned we were going through Tallawan station. After passing a tank 50 miles from Fowler's Bay two Port Lincoln Parrots (*Barnardius zonarius*) crossed our track, and about Colona we fell in with the first Magpies seen for a very considerable distance. They were the White-backed species (*Gymnorhina hypoleuca*); no black-backed birds came under observation at all. Crows were frequently seen. Outside Fowler's Bay the Parrots were seen again, as well as a party of Wood-Swallows.

Fowler's Bay is a pretty seaside town. Silver Gulls were numerous around the pier and with them were a pair of Pacific Gulls (*Gabianus pacificus*). The former appeared to resent the presence of the bigger birds, but they, squawking, merely opened their beaks at the Silver Gulls as the two species flew together. One or two dark-coloured immature Pacific Gulls were also present. We proceeded out of the town next morning. eastwards along the bay. Pipits were noted in the low scrubs, and a mile or less out a fox ran across the track. Some four miles further on I saw a pair of Major Mitchell Cockatooos (*Kakatoe leadbeateri*) perched on fence-posts. As we came along they rose and flew screaming into the mallee, displaying their salmon-hued underwings. Crows were in plenty and Magpies, too, were seen. Just out of Penong, about 45 miles from Fowler's Bay, were seen Dusky Wood-Swallows, and at Ceduna, on Murat Bay, where we lunched, we noted immature and adult Pacific Gulls, Silver Gulls and a Kestrel. Five miles out of Ceduna, on the way to Wirrulla, a White-backed Swallow was observed, and more Dusky Wood-Swallows. The last-mentioned were seen again further along, with Pipits and Swallows, and two unrecognized green Parrots. Nearing Wirrulla I noted a Black-and-white Fantail and a Rainbow-Bird. We had tea at this place, which is 220 miles from Port Augusta, and elected to go on and negotiate the vaunted Yardea Sands—a stretch of several miles of sand-ridges—before we camped. The going was fairly easy until towards the end, but clumps of spinifex in parts made it very rough. A bad patch lies to the west of a salt lake and another stretch, known as the Devil's Playground, is to the east of it. With some manual effort we got through and struck camp in a belt of mallees in the vicinity of the Narloby Tank, which is about 184 miles from Port Augusta. It was a moonlight night and a Black-and-white Fantail hailed our arrival with musical honours. Bed was sought promptly, but we had scarcely settled down when somebody discovered that the place was already invested by regiments of large ants. After wandering around disconsolately attempting to find a spot free of them, it dawned on us that nobody had been bitten and we might as well put up with our unwelcome bedfellows. The ants were a large honey-ant (*Camponotus australis*).

At dawn the birds struck up a fine chorus, and it was pleasant to lie in our "dugouts" (in blankets spread between the saltbush) and listen to the airy minstrels. One could discern the notes of the Black-and-white Fantail, Golden Whistler, Brown Weebill, Red-tipped and Spotted Diamond-Birds, Black-faced Cuckoo-Shrike, Grey Butcher-Bird, Red Wattle-Bird, Purple-crowned Lorikeet (and perhaps another Lorikeet), Green Parrots (perhaps the Port Lincoln), and Crows. One of a party of the latter had a particularly hoarse cry. A walk in the surroundings—eucalypts, sheoak, some spinifex, and the interminable saltbush—added the Yellow-plumed Honeyeater (*Meliphaga ornata*) and the Brown Fly-catcher. The Honeyeaters were particularly plentiful in the locality. As we set out on the day's journey, the Gawler Ranges rose into view, and at 12 miles we came up to them, following a valley between slopes of red hills. At 25 miles, at a short stop, I heard Black-faced Cuckoo-Shrikes, Golden Whistlers and Crows, and about nine miles further on, at Yardea station, I saw a Spiny-cheeked Honeyeater (*Acanthagenys rufogularis*), as well as Weebills, Crows and Singing Honeyeaters. On crossing the Gawler Ranges we saw Magpies and a Hawk. We had lunch about 48 miles from the camp and heard a Red-tipped Diamond-Bird; a Spotted Diamond-Bird was heard a little further on. At 120 miles a pair of Galahs (*Kakatoe roseicapilla*) flew over a dam, calling loudly. A Dusky Wood-Swallow was noticed a few miles ahead, and at Corunna station a flock of Grass-Parrots rose from the ground. Dusk overtook us long before we made our destination, Port Augusta, the west shore of the gulf being reached about 10 p.m.

With our arrival at Port Augusta we entered the "civilized" parts, characterized henceforth by a continuous chain of towns, mature agricultural lands, and, along the highway, little in the way of virgin bushland. At Port Augusta I was puzzled at first as to what were the numerous noisy, finch-like birds which seemed to prevail everywhere. It was my first acquaintance with Sparrows, and I have an idea that a crowd of noisy little birds which I saw from afar when leaving Fowler's Bay were also of this species. On the whole run to Adelaide Sparrows were amazingly plentiful in town and country, chattering in wheatfields and haystacks, and darting up from the road before the very wheels of the car. They and the Starlings completely overshadowed the indigenous species. At Clare an Indian Turtledove (*Streptopelia suratensis*) was seen, but familiar Australian birds frequently reminded us that the others were only unusually successful interlopers.

A Trip to the Mallee.

By [REV.] CLARENCE L. LANG, R.A.O.U., Doncaster, Victoria.

It was during the month of October, 1926, that I went to the northern Mallee, visiting the districts of Mildura, Redcliffs, Carwarp, Merbein and Yelta in the State of Victoria, and Wentworth, and Coomealla and Curlwa in New South Wales. The Murray River was flowing over its banks and this did not give a very good opportunity for the observation of water-birds.

The Mallee may be termed Nature's aviary, for there is no part of the Commonwealth of Australia, that I know of, that is richer in bird-life. The Mallee eucalypt does not grow very high, and its clean white trunks, with most of the foliage at the top of the tree, are things of beauty, especially when the trees are in full bloom. Most of the Mallee scrub is hollow and affords numerous nesting-sites for the Parrots and the other birds that love to make their homes in hollows. Belar trees are also fairly numerous, and these are the nesting-places of the White-browed Babbler (*Pomatostomus superciliosus*) and the Wedge-tailed Eagle (*Uroaëtus audax*). Sandal-wood trees are seen occasionally and Murray pines are numerous, growing in clumps. The Crested (*Ocyphaps lophotes*) and Bronze-wing (*Phaps chalcoptera*) Pigeons construct their frail homes in the pines. The finding of a quandong tree is the cause of rejoicing, especially if the fruit is ripe, for it makes a delicious dish when stewed; but I am assured that there is a proper way to cook the fruit so that it will not retain the nutty flavour. The native honeysuckle when in flower adds a touch of colour to the bush.

Then there is the blue-bush country, full of interest to the ornithologist; for it is here we see the Chats, the beautiful Blue-and-white Wren (*Malurus cyanotus*) and the Mallee Emu-Wren (*Stipiturus mallee*).

The Mallee is noted for the variety of its Parrots, all of which have very beautiful plumage, and everywhere they can be heard chattering and screeching. While staying on a farm two miles from Carwarp railway station, I got a great deal of pleasure in the evening, after a hot day, with the thermometer in the vicinity of 100° in the shade—and not much shade—in wandering in the cool of the evening to the edge of the scrub; and where a track, about three chains wide, had been cut out of the wheat-crop, watching the birds as they came in hundreds to feed in this area. Pigeons and Parrots of many descriptions chattered and clamoured over their evening meal, while along the wires of the fence were the Rainbow-Birds (*Merops ornatus*). They would leave their perches occasionally to dart after some insect, cleverly snap it while on the wing, then gracefully glide back to the resting-place, showing the beautiful golden-brown on the under-side of the wings.

Passing along the edge of a crop of wheat one morning, with my mind set on reaching a scrub area in the distance, I was startled by a sudden whirr of wings in front of me, and looking down to the spot whence the bird rose, saw the nest of a Little Quail (*Turnix velox*), containing three eggs thickly mottled with fine brown spots. Having a camera with me, I took a couple of photos of this nest. On the edge of the Mallee several Peaceful Doves were noted, but these birds did not seem to be very numerous. Bronze-wing and Crested Pigeons were seen in great numbers in the vicinity of Carwarp, and the peculiar whistle of the wings as the Crested Pigeons rose was often heard.

A pair of Crested Pigeons made their home in a Murray pine about 30 feet from the back door of the home where I was staying, and took no notice of the children playing around the tree. But it was quite a different matter when I tried to get a photo of the bird sitting on the nest. I tied my camera on to the top of a long ladder, adjusted it so that the lens was about four feet from the bird, and camouflaged it with a green cloth and foliage; but the bird could not be induced to come near, so I reluctantly had to remove it. The nest was a frail platform of twigs on which were placed two pearly-white eggs.

Around the edges of lagoons and billabongs of the Murray were numbers of Black-fronted Dotterels (*Charadrius melanops*) with their wonderful protective colouration. In the open paddocks Spur-winged Plovers (*Lobibyx novæ-hollandiæ*) were fairly numerous. Around the billabongs could be seen the White-faced Heron (*Notophoyx novæ-hollandiæ*) and White-necked Heron (*N. pacifica*) standing like statues, except occasionally their long necks would shoot out and they would seize their prey. Flocks of Grey Ducks (*Anas superciliosa*) were often seen, and one evening six Black Swans (*Chenopis atrata*), flying low with necks outstretched, passed overhead.

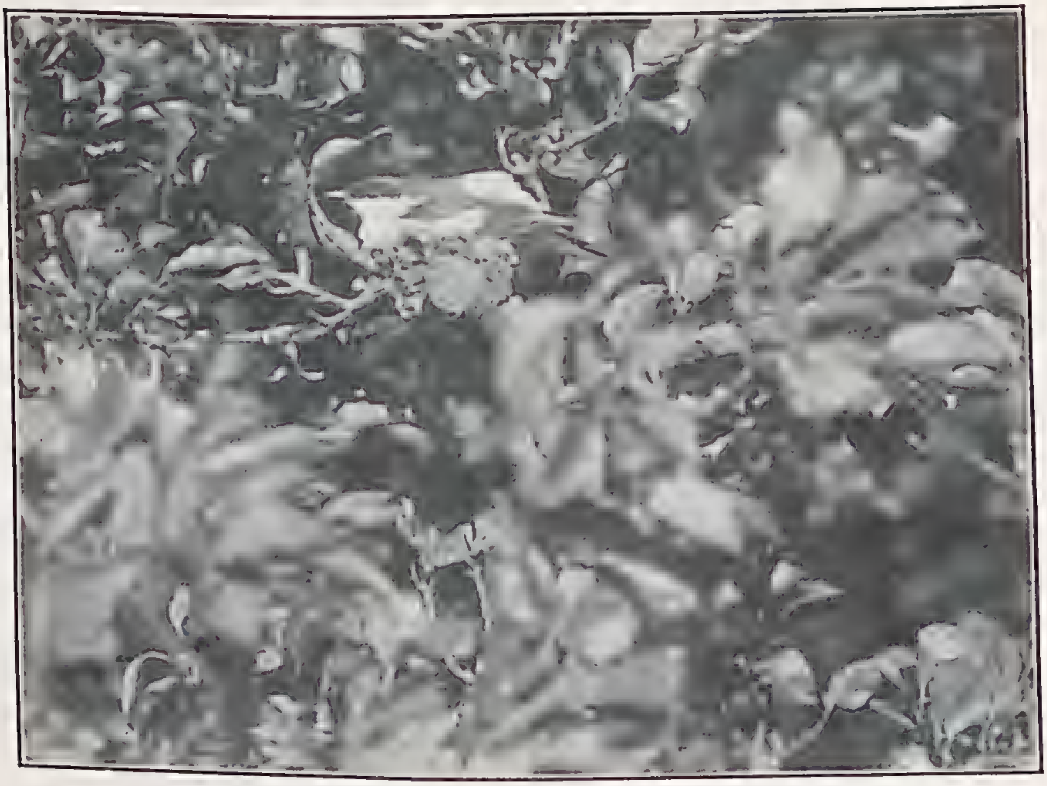
One of the most majestic birds we have in Australia is the Wedge-tailed Eagle. One pair had a nest built in a belar tree towards Yelta district. I had a splendid view of these birds as they flew overhead, at a height of about two hundred feet, the wedge-tail being very noticeable. The hawk-like birds seemed very scarce, the Brown Hawk (*Falco berigora*) being the only one I observed.

You cannot go very far in the Mallee without hearing the chatter of Parrots or seeing the flash of their bright plumage as they fly through the scrub. Several flocks of Galahs (*Kakatoe roseicapilla*) were seen in flight, and there is nothing more beautiful than these birds flying. As they turn you see a flash of pink, and then they bank and the bluish-grey on the upper part of the bird is shown. It is wonderful how these birds all turn at the one moment. The Ringneck (Mallee) Parrots (*Barnardius barnardi*) were often seen in the branches of the red gum saplings on the banks of the Murray. I saw a pair of young albinos of this species which a woodcutter had taken from a nest; they were of a pale-yellow colour, with pink feet and red eyes. The Mulga Parrots (*Psephotus varius*) are beautiful birds in which green and yellow predominate. They could be seen quietly feeding or else flying low through the Mallee scrub. The Blue Bonnet (*P. hæmatogaster*) is fairly common; it is not so rich in colouration as some of the Parrots. The back is an olive-green with a scarlet abdomen and a patch of blue on the forehead, from which the bird gets its name. At one farm I visited three young Blue Bonnets were in a cage. They kept up a continual calling for food and showed no hesitation in eating damp oatmeal out of a spoon. The Red-backed Parrots (*P. hæmatonotus*) are numerous along the Murray, and are generally seen in pairs, the male easily recognized by his brighter plumage. Then there is the tiny Shell-Parrot or Budgerygah (*Melopsittacus undulatus*). Often these little birds come in multitudes to a district, but I saw only a few of them on this occasion.

One bird I missed in the Mallee was the Kookaburra (*Dacelo gigas*). His merry laugh was only heard on rare occasions. Maybe there is a scarcity of food for them in the Mallee, as I only saw three birds. The Sacred Kingfishers (*Halcyon sanctus*) were busy nesting along the banks of the Murray. At Merbein, where the cliffs rise to a considerable height, numerous nesting-burrows could be seen. The piping note of these birds could be heard continually as they sat solitarily on some dead twig.

Rainbow-Birds (*Merops*) are very numerous in the northern part of Victoria. They are migratory birds, coming south about the first week in October. They make their nests by burrowing about five feet into the earth, preferably a sandhill. At the end of this burrow a cavity is made in which the bird lays its pearly-white eggs, usually five to the clutch. No nest is built, but the eggs are laid on the sand in the cavity. The earliest I have found the nesting-burrows of this bird is October 28. The birds spend the summer with us, and move north about the end of March. The Fan-tailed (*Cacomantis flabelliformis*) and Pallid Cuckoos (*Cuculus pallidus*) were often seen, and the notes of the latter could be heard all day.

Welcome Swallows (*Hirundo neoxena*) were observed in large numbers, especially in the irrigation country. A pair of these birds were rearing their young under one of the shop verandahs in Merbein. The beautiful White-backed Swallows (*Cheramœca leucosterna*) were making their nesting-burrows in the cliffs at Merbein. Circling round, they would repeatedly fly to the one spot and, while on the wing, peck at the earth, excavating their homes in the sides of the cliffs. The Tree-Martins (*Hylochelidon nigricans*) and Fairy Martins (*H. ariel*) were working hard making their mud nests. The latter



WHITE-SHOULDERED TRILLER (MALE), BROODING.
Photo. by A. H. Mattingley.

WHITE-BROWED BABBLERS AT NEST. (Note tail of one bird protruding from entrance.)
Photo. by D. W. Gaukrodger.

were in great numbers, collecting mud and building under the concrete culverts of the irrigation channels. The Fairy Martin loves to build in colonies. A dozen or more will commence building, and when the nests are half-built will discover that they are building more homes than are required. In all the nesting-groups I have seen there are always several uncompleted nests. The nests are of a retort shape and lined with feathers. The Black-and-white Fantails were busy at domestic duties. Some of these birds were building and others had young fully fledged. I was shown one pair of birds that had reared one brood and were now using the same nest again, in which three eggs had been laid. The Grey Fantail (*Rhipidura flabellifera*) seems to be a rare bird in the Mallee, as I only saw one pair. A pair of Restless Flycatchers (*Seisura inquieta*) had built a nest high up in a red gum tree on the banks of the Murray and were now kept fully occupied feeding their young. The Robins are not very numerous, with the exception of the Red-capped Robin (*Petroica goodenovii*), which is always seen in great numbers north of the Dividing Range. It is a beautiful little bird, the male bird especially, with its suit of scarlet-and-black and a bright red cap. The Hooded Robin (*Melanodryas cucullata*) was also observed.

The Whistlers could be heard in every part of the Mallee I visited. These birds are well-named, for to my mind there is no sweeter whistler in the bush. Passing through some Mallee scrub, I was attracted by the note of a bird that was strange to me, and, coming closer, saw for the first time the beautiful Red-throated Whistler (*Pachycephala rufogularis*), a bird peculiar to the Mallee.* The Rufous Whistler (*Pachycephala rufiventris*), could be seen and heard almost every day. I was awakened on several mornings as the first rays of day appeared with the song of one of these birds outside my bedroom window.

One of the finest songsters of the bush is the Grey Shrike-Thrush (*Colluricincla harmonica*). Its flute-like note could often be heard breaking the silence of the spring morning. A pair were busy building a nest in a native honeysuckle. The Magpie-Lark (*Grallina cyanoleuca*) has been termed the Murray Magpie, and not without reason; for it is found in great numbers on the banks of the Murray and its tributaries. It always has a clean and neat appearance. Occasionally a Black-faced Cuckoo-Shrike (*Coracina novæ-hollandiæ*), was observed, the blue-grey plumage being hard to detect in its natural surroundings. One of the commonest birds noticed was the White-winged Triller (*Lalage tricolor*), a bird well-named, for it has a very fine song. The male has conspicuous black-and-white plumage, but the female is of a dull-grey colour. Another common bird of the Mallee is the White-browed Babbler, generally seen feeding in flocks of ten or twelve. It seems to build several nests and lays its eggs in one. Some of the belar trees contained four or five nests. While at Carwarp one morning I observed a pair of these birds approaching their nest at short intervals with food. Climbing to the nest, I was surprised to find that it contained a young Pallid Cuckoo, which flew out as I approached. Next day I saw the pair of Babblers working their hardest to satisfy the unending appetite of this greedy parasite.

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* Probably the Gilbert Whistler (*P. inornata*).—EDITOR.

The blue-bush plain is the home of the White-fronted Chat (*Epthianura albifrons*), and Crimson Chat (*E. tricolour*). The former are very plentiful, the male being very conspicuous with his white breast with a band of black across it. The Crimson Chat is a rarer bird; it was only seen occasionally A pair of the Eastern Whiteface (*Aphelocephala leucopsis*), had made their home in a hollow log in a woodpile. They were very confiding little birds, apparently taking no notice of the men as they moved around the woodheap.

The Thornbills are well represented in the Mallee. Those observed were the Little Thornbill (*Acanthiza nana*), a pair of which were actively engaged building a nest in a small Mallee eucalypt; the Buff-tailed (*A. reguloides*), Red-tailed (*A. hamiltoni*), and the Yellow-tailed (*A. chrysorrhoa*), all of which are fairly common. The Brown Song-Lark (*Cinclorhamphus cruralis*), is one of our finest songsters, and in the paddocks of the Merbein district one of these birds could be heard singing all day. While watching this bird he perched on a post a few feet away, and I had a splendid opportunity of observing him as he was singing.

Several species of Wrens are found in the Mallee. The Blue-and-white Wren seems to like the blue-bush country, and is very plentiful, and the Purple-backed Wren (*M. assimilis*), and Black-backed Blue Wren (*M. melanotus*), prefer the Mallee scrub. The former can be recognized by the dull-red patch on the wing, while the Black-backed Blue Wren wears a gorgeous coat of turquoise blue and is one of the most beautiful of the Wrens.

On those cloudless days for which the Mallee is noted you may see the Wood-Swallows soaring high overhead. The most common is the White-browed (*Artamus superciliosis*). A pair of this species had built a nest on a strainer post in one of the vineyards at Merbein, and the nest contained three beautiful speckled eggs. The White-browed and Masked Wood-Swallows seem to like the vineyards, and they must prove of inestimable value to the block-holders in ridding their vines of insect-pests. The two species are migratory in their habits, arriving in Victoria in the spring and leaving us again at the end of the summer. The Dusky Wood-Swallow (*A. cyanopterus*), which is also fairly numerous, remains with us all the year round.

While at Carwarp, I saw a family of Black-capped Sittellas (*Neositta pileata*), parent birds and three young. They had nested in a small Mallee tree, where they had successfully brought out their young, and were now engaged in building another nest about five feet from their previous home. The three young birds accompanied their parents as they flew to the new nest with building material. Climbing up and around the trunks of the trees were Brown Tree-Creepers (*Climacteris picumnus*), searching for food. When a bird has investigated every crack and cranny, it will gracefully glide to the next tree, showing the golden-brown under the wing while in flight. One morning, while seated at the side of the house, I was attracted by several Red-tipped Pardalotes (*Pardalotus ornatus*), which were coming to a pipe that was used as a ground for a wireless set and drinking the water which was in the pipe. I filled the pipe with water and throughout the day the birds were coming for a drink.

The Mallee is famous for the number and variety of its Honeyeaters. The common White-plumed (*Meliphaga penicillata*), could be seen in all parts. The Noisy Miner (*Myzantha melanocephala*), and Yellow-throated Miner (*M. flavigula*), birds very similar in plumage to one another, were also common. The Noisy Miner was found in greater numbers near the Murray. A nest of the Noisy Miner was found—a frail structure, containing three eggs, thickly covered with small red specks. This species was also observed with young fully fledged. The Little Wattle-Birds (*Anthochæra chrysoptera*), and Little Friar-Birds (*Philemon citreogularis*), were feasting among native tobacco bushes, which grow in profusion along the banks of some of the water-channels. A pair of Spiny-cheeked Honeyeaters (*Acanthagenys rufogularis*), had built a nest entirely of wool, which was suspended from an overhanging branch of a belar tree. The Blue-faced Honeyeater (*Entomyzon cyanotis*), one of the largest and most beautiful of the Honeyeaters, was observed feeding among the branches of a red gum on the banks of the Murray.

In the open country and along the sides of the roads the Pipit or Ground-Lark (*Anthus australis*), with its protective colouration, was noted, and in the same locality small flocks of Zebra Finches (*Tæniopygia castanotis*), seeking for food among the grasses, would fly up, uttering their peculiar tanging note. The Olive-backed Oriole was noticed on several occasions—a very fine bird with scarlet eyes and a red bill. The "Caw, caw" of the Crow (*Corvus cecilæ*), was frequently heard. This bird is of great value to the farmer, as it is a marked factor in ridding him of the blow-fly pest. I found no evidence that it kills lambs, as some folk suppose. Small flocks of the White-winged Chough (*Corcorax melanorhamphus*), were noted—birds of black plumage with white in the wing, which is very conspicuous when they fly. Their low, mournful, whistling note could be heard in the open Mallee scrub.

The mellow note of the Grey Butcher-Bird (*Cracticus torquatus*), rings through the bush, a wonderful song. The Black-backed (*Gymnorhina tibicen*), and White-backed Magpies (*G. hypoleuca*), birds closely related, were singing their carols from early morn to late at night, pausing only for their meals. On moonlight nights they can also frequently be heard singing, while in the smaller shrubs the Black-and-white Fantail (*Rhipidura leucophrys*) sings "Sweet pretty creature" as he flits among the moonbeams.

The Pelican (*Pelecanus conspicillatus*), nests among the secluded billabongs of the Murray, and it is a wonderful sight to see a flock of these birds rise from the water and float around in the sky like aeroplanes, or to see them gently drifting on some quiet water like so many galleons.

Settlement is rapidly changing the fascinating wild Mallee into a productive garden. It is to be hoped that the settlers will recognize the economic value of birds, and in clearing their land leave a small section in its natural state as sanctuary for our feathered friends.

Origin of the Name Podargus.

By F. L. BERNEY, R.A.O.U., Longreach, Queensland.

Robt. Hall, in *A Key to the Birds of Australia,* gives the derivation of the generic name *Podargus* as *pous, podos,* foot. This is scarcely satisfactory, as it denotes no particular feature; all birds have feet. Mr. H. Wolstenholme, in the recently-published R.A.O.U. Checklist (p. 126), ventures further. He writes: "A Vieillot name, evidently from *Le podarge* of Cuvier, which might be formed from G: *pous* (*podos*) foot, and *argos,* slow. The word has, strangely, the opposite meaning in the *Iliad* of Homer, where *Podargus* is the name of a swift-footed horse; there being another Greek adjective, *argos,* which means swift."

For this suggested explanation to be applicable these birds would have to be either noticeably slower or swifter on the wing than most, but in fact as regards pace their flight is only normal. Does not the name rather come from G: *podagra,* gout in the feet? True, there is the transposition of the two letters *g* and *r,* but we get much the same in *dacelo* from *alcedo.* Mr. Wolstenholme points out that Vieillot probably formed his name on Cuvier's *Le podarge.* Well, *podarge* in French means gouty—gout in the feet.

How do the *Podargidœ* bear this out? I do not collect and therefore shoot but few specimens, but years ago I shot for the purpose of identification a Plumed Frogmouth (*Podargus papuensis*), and while it was still fresh in the flesh I took a careful description of the bird and noted down any striking features. In my "Birds of the Richmond District, N.Q." (*The Emu,* Vol. VI, p. 43), I mentioned this specimen and wrote, "The feet are quaintly chubby and well earn for the bird its generic name; the toes, being thick and swollen at the base, taper rapidly to their extremity." I took it for granted at the time that *Podargus* came from *podagra.* The swollen appearance of the feet was very striking and suggested at once three carrots tied in a bunch. It is hardly likely that I chanced on an abnormal specimen, and the bird's feet appeared quite healthy.

What puzzles me is the fact that I have turned up all the leading authors on Australian birds without finding any reference to anything unusual in the feet of the *Podargidæ.* I would be greatly interested in hearing the opinion on this matter of any ornithologist who has handled these birds in the flesh, and would ask those who may have the chance of doing so in future to take careful note. Possibly the peculiarity may not show in the shrunken feet of a dried skin, or so little as to be overlooked.

Stray Feathers.

Nesting Habits of Lyre-Birds.—At a recent meeting of the R.A.O.U. in Melbourne the nesting of *Menura* was discussed, and its habit of making a "platform" or skeleton nest, to be used later on, appeared to cause some astonishment. I believe this has been mentioned before by other observers, but it has been known to myself and friends since 1917.

Our first experience was a photograph taken of the mere outline of a nest built into the bank of a creek at Selby, in the Dandenong Ranges, during 1917. This platform or skeleton nest was photographed by Mr. Tom Tregellas, and during the winter of 1918 it was still in the same condition; but on July 13, 1919, the nest was perfected and contained an egg.

During the winter months of 1925 I was visiting another gully near Warburton, and close to a nest built into the creek-bank a platform was built up on the top of a large, conical rock on the bank close by. Then came disastrous fires and this gully was absolutely gutted as the second fire, which swept it, completed the destruction of anything the first had missed. When we visited it during July and August of 1926 we were surprised to hear the calls of numerous Lyre-Birds all over the hillsides. There was not a vestige of greenery anywhere. Both hillsides and the gully itself were bare, with the exception of hundreds of fallen trees, mostly mountain-ash. The hazels, musks, blanket-wood and ferns were all charred black, but the Lyre-Birds were still there.

How did they escape destruction? It has occurred to us that possibly they took refuge in wombat-holes. We noticed many after the fires that had probably escaped our attention before. Also, the most remarkable thing was the fact that the birds were all in their original haunts. For instance, one female laid a light biscuit-coloured egg with a very dark zone of large, blackish markings. She used to place her nest on the side or top of old dead tree-stumps, but, of course, these went in the fires. However, her nest was found built on a bank and backed up against a dead or burnt sassafras-tree, and the identical egg was in it.

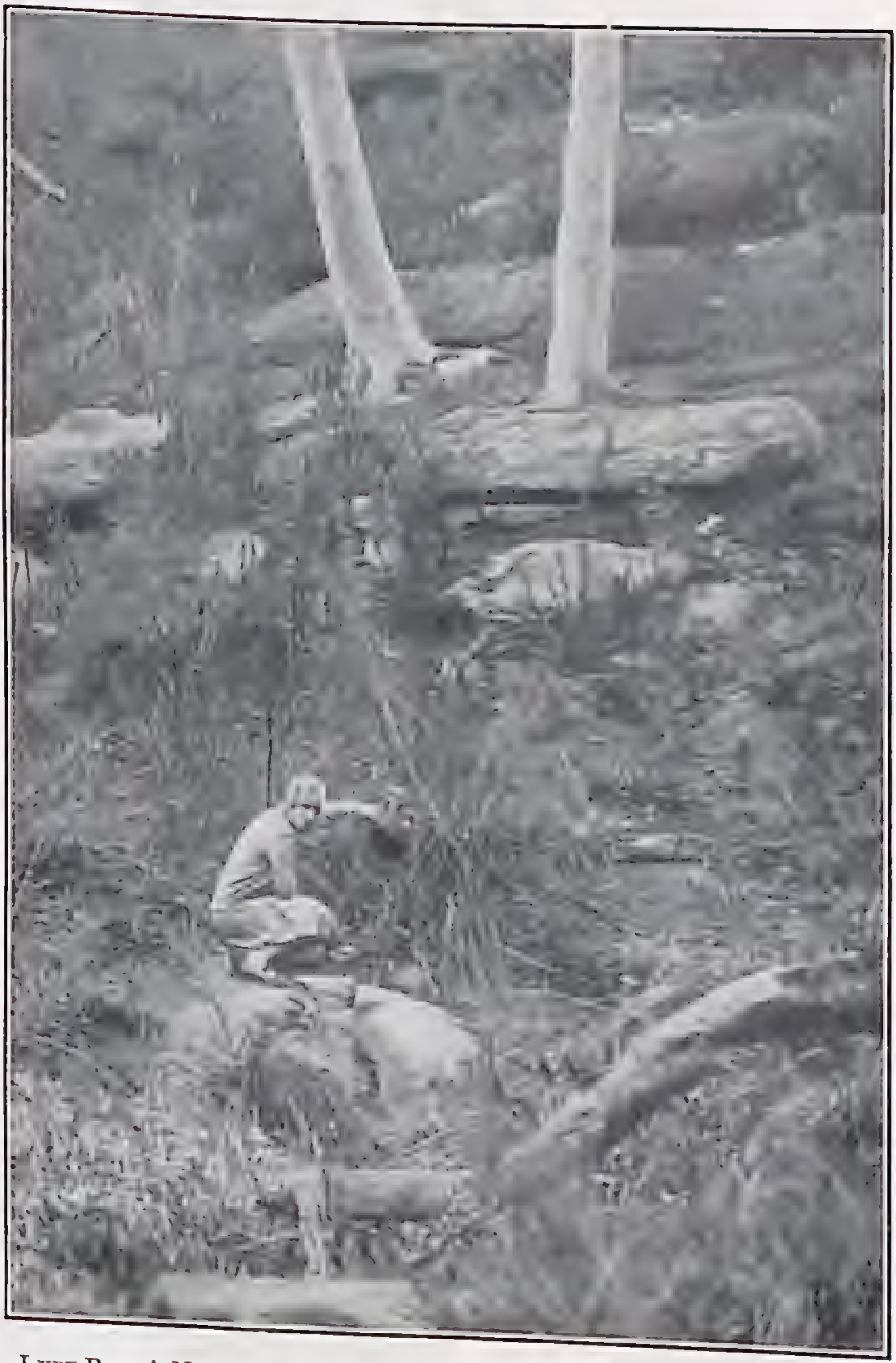
But to get back to the platform on the large, conical rock. When the fires came, of course, this platform was destroyed, but on August 1, 1926, when the site was visited, there was the completed nest with its reddish-coloured egg.

Other gullies were visited and the birds were found to be quite as numerous or even more so, because we could get over more country. We had always reckoned that a certain gully held six pairs of birds, but after the fires eleven nests were observed.

Last season two platforms were found in a short gully, and in June last we drove straight to them. The first was built up and ready for the egg and the second was added to, and I would wager it is finished and the egg deposited in it next season.—F. E. Howe, Melbourne (August 24, 1927).

* * *

The Strange Penguin.—The strange Penguin which I reported in *The Emu* (Vol. XXV) appears to make occasional visits to this coast. Mr. Clemes, of Clemes College, who has a summer residence here, told me that some years ago a large Penguin spent the day on one of the ledges inside Tasman's Arch. When I asked for a description he could not remember details, but the size impressed the bird on his memory. Some school-children asked me the name of the big Penguin which, to quote their words, "stood nearly as high as Chickie" (one of the little girls, which allows a bit for childish conception of height), and had a long white patch at the back of its head. "It was crabby and wouldn't let us touch it." Questions elicited that they came on it one day on the shore and saw it standing on a shelf of rock. If, as has been suggested (*vide The Emu*, Vol. XXVI, p. 137), this should be the Rock-Hopper of the New Zealand region, it is interesting to note the long journey the bird had taken. Did it come this way for food; or does a remnant of some far-off call of instinct still find response in an occasional bird?—(Miss) J. A. Fletcher, Eaglehawk Neck, Tasmania (August 30, 1927).



LYRE-BIRDS' NEST IN AN UNUSUALLY OPEN SITUATION, NORTH SYDNEY (August, 1927). This nest, which was much better built than those placed in cavities of the Hawkesbury sandstone, is now in the Australian Museum.

Photo. by A. H. Chisholm.

NATIONAL MUSEUM MELBOURNE

Notes on the Kookaburra.—The status of the Kookaburra (*Dacelo gigas*) has been much discussed in Victoria of recent years, owing to its alleged habit of pilfering nests containing young birds. Those who are opposed to this bird being kept on the protected list contend that there is no greater evil amongst the smaller forms of bird-life than the "Laughing Jackass." It is true that Fantails and similar birds display consternation at the presence of a Kookaburra near their nests, but this may be due to its large size and not from the actual experience of having their nests robbed.

The best evidence as to the value of the Kookaburra may be gained on an examination of a nesting hollow containing young Kookaburras a few weeks old. It is then possible to ascertain the staple diet of the bird. In the course of twelve years I have inspected ten nests, most of which contained young birds in various stages of growth. In not one instance can I recollect finding bones of any birds in the nests, though the nest floor represented a mass of legs and wings of numerous varieties of beetles, etc. This fact alone clearly shows the infrequency with which young birds are used for food.

Like most birds which nest in hollows, the "Laughing Jackass" will resort to the same hollow for many years in succession. A pair in the Warragul district used the same hollow, in a tree by a roadside, every year from 1909 until 1924, when the tree was blown down in a storm. The enormous increase of Starlings is depriving the Kookaburra of many of its old nesting-sites, for, once these are used by the imported birds, the Kookaburras appear to forsake them for all time.

At Bayswater in October, 1917, it was my good fortune to see a "Laughing Jackass" with a snake dangling from its bill. The bird, being unable to fly very far at a time, was followed, and it eventually dropped the reptile, which proved to be a copperhead, 27 inches in length. The snake had not long been killed; there was still movement in its body. The only blemishes on its body were at the back of the neck, where it had been severely pecked by the bird. On another occasion, some years before, I had watched another Kookaburra with a small object in its beak. The morsel was dropped after the bird had been disturbed a few times, and was found to be a sparrow denuded of its feathers.

The accompanying photograph was taken at Upper Beaconsfield on January 4, 1927, at a hollow containing two young birds almost fully grown. Although the hollow was in the dead portion of the trunk and over 60 feet from the ground, I was able to fix the camera to a branch opposite the nest, and while thus engaged the old birds came quite unconcernedly with food to their young. Once the camera was arranged I had no trouble in securing the photos without having the tedious task of climbing the tree after exposing each negative.

At that time of the year the forest was thronged by myriads of green cicadas, and upon these the adult Kookaburras fed their young, as indicated by the mass of wings and legs upon the floor of the nest.—D. DICKISON, Melbourne (August 28, 1927).

* * *

The Neophema Parrots.—I read with interest the various notes appearing in the last issue of *The Emu* on the *Neophema* Parrots. Though I cannot add any more details relating to their family history, a few notes on their distribution, so far as they have come under my notice, may be of interest.

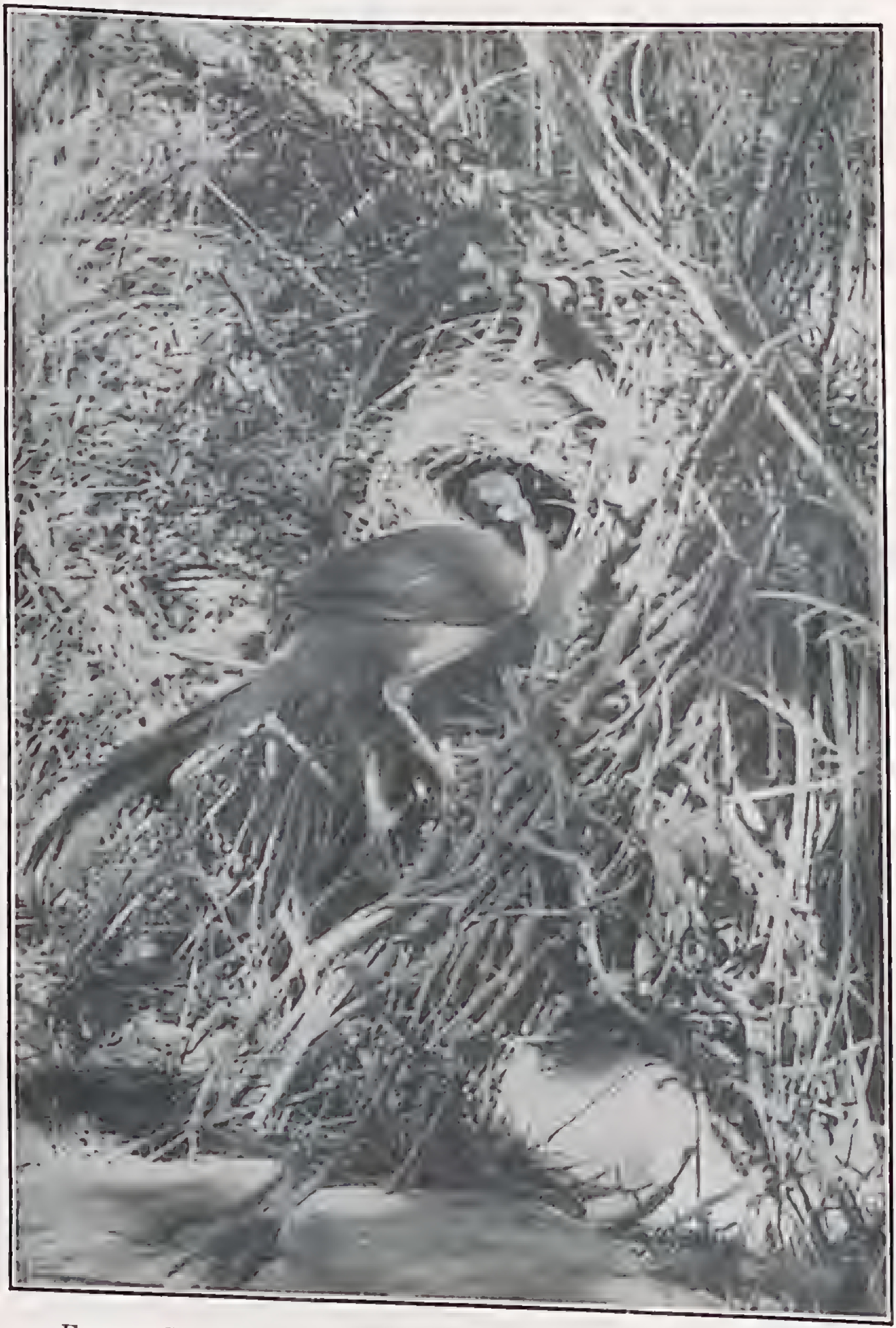
Neophema chrysostoma.—In February, 1907, Blue-winged Parrots were numerous around Cleveland and Conara, three miles apart, and both places in the confines of the Epping Forest referred to in two of *The Emu* articles. These Parrots spent much of their time on the common to the east of the school eating the seeds of the native grasses, which in that dry area ripen early. Later they frequented the bases of the briar bushes, breaking open the fallen briars. They remained several months in this strip of country.

Associated with these was a smaller flock of the beautiful Orange-breasted Parrot (*Neophema chrysogaster*). They were very friendly, and as they quietly sought for food within a short distance of the observer their distinctive colouring was easy to note. My sister, cycling to and from her school duties at Conara, was the first to report to me the presence of these latter birds, and later I frequently saw them on the common. I was particularly interested in both these species, because this was the first time I had come into such close touch with them. Both appeared to eat the seeds of the native cranberry (*Astroloma humifusum*).

I met with the Blue-winged Parrot at Tunbridge when spending the Michaelmas holidays of 1908 with some friends, whose place lay at the foot of the Tiers. At that time I was suffering from an injured foot and could get about only with difficulty.

On King's Birthday holiday, 1909, I stayed a couple of nights at the same place and found that the Blue-wings were present, and also that several pairs had chosen their nesting-trees. This tract of country is eminently suitable for these Parrots, but, unfortunately, Starlings have increased to such numbers that they are a serious menace to those of our birds which prefer clean nesting-holes.

During my residence at Springfield, in the north-east, I saw Blue-winged Parrots running along the side of the road, where they appeared to be feeding on the fallen seeds of cocksfoot grass. I also saw the species on the flats near the



FEMALE LYRE-BIRD REMOVING EXCRETA. (Same nest as shown in Plate 19.)

Photo. by A. H. Chisholm.

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Brid River, but as far as I could observe this bird did not remain all the year.

Both in the Epping Forest and Steppes district I have spent much time examining tiny holes in fallen trees for nests of these Parrots, but finally I concluded that such situations were not favourites. At The Steppes I found one nest of a pair, the site being a small hole in the main trunk of a tall, dead gum. The parents were engaged feeding the young. Both flew to the nesting-tree together. One waited on a small branch whilst its mate slipped into the tiny aperture; then, as it emerged, the waiting bird entered for its share of feeding duties. This was in the afternoon, between four and five o'clock. I took a photo of the tree, but the birds flew away and did not return before I had to leave the spot. That was on January 1, 1921. At a later visit in the spring of 1922 I saw several flocks of *Neophema,* one near The Steppes, one on St. Patrick's Plains, and another on the way to Arthur's Lakes. Last year I noted the Blue-winged Parrot near the Tasman Arch end of this district. But the destructive bush-fires destroyed the grass early this year, so it is not likely that these Parrots will appear here until the new grass ripens its seeds.

One of the many bird-victims of the February bush-fires was a Ground Parrot (*Pezoporus wallicus*), and another fell a victim to a neighbour's cat.

Unfortunately, as is the case with all settlements where mills alternately open and close, there are numbers of wild house cats, and these take a heavy toll of bird-life. One of these brutes, recently trapped, weighed 10 pounds, was in plump condition, and had a beautiful fur. There are several plots in my garden richer for the burial of these beasts.—(MISS) J. A. FLETCHER, Eaglehawk Neck, Tasmania (August 30, 1927).

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The White-winged Triller (*Lalage tricolor*).—These nomadic birds are generally found in isolated pairs throughout the lightly-timbered areas of southern Victoria, where they usually arrive in October to breed. Though their numbers here are at no time very great, last year proved an exception, for something approaching an irruption of these birds occurred in the rural districts around Melbourne during November. Such a visitation had not previously been known of recent years. Nesting operations were commenced immediately, and broods were reared. By January practically all the birds had disappeared. In one small paddock, less than seven miles from Melbourne G.P.O., no fewer than three pairs built their nests, all within fifty yards of one another. When two of the nests were almost completed the birds, for some unknown reason, commenced building new nests in neighbouring trees, and using the material from the deserted nests. Both birds took turns at brooding, but by far the greater share was done by the male, who at times bitterly resented the female coming to take her turn on the nest. In fact, the males which I had under notice were most quarrelsome birds, not only amongst themselves but with other birds generally. Each pair kept to its own territory, but sometimes a male would venture into its neighbour's confine, upon which it would be driven out by the rightful owner. Once the pursued male got within a certain distance of its nesting-tree, it would turn on the pursuer, who, in turn, would hasten back to its own tree.—D. DICKISON, Melbourne (August 28, 1927).

* * *

The Charming Lotus-Bird.*—One of the prettiest sights on the lagoons and water-holes about parts of the North Coast, N.S.W., is to see Jacanas, or Lotus-Birds, pattering about among the damp vegetation on the edge of the water, or, as more frequently happens, wandering with careless grace across the mats of lily-leaves or water-weeds.

Standing very upright, one of these birds, with its long toes and scarlet comb, makes an arresting picture poised on a raft of floating leaves that looks all too frail to bear its weight. Its graceful stateliness of bearing, together with the shining, well-groomed appearance which it invariably presents, makes the onlooker feel that this is indeed an aristocrat of the bird-world.

Although this bird is said to possess weak powers of flight—and, personally, I have never seen one fly more than a few yards, as, when uttering its shrill note, it flits to some other spot upon the floating vegetation where it wanders—yet upon several occasions, shortly after heavy rain, I have seen specimens wandering about the edges of water-holes or lagoons that had been dry for months, and in one or two cases for years. And these lagoons may be situated several miles from any other water where the birds might have lived, a fact which indicates that they can fly well.

Although usually to be seen wandering across the floating weeds and leaves, Lotus-Birds will sometimes be seen walking on the mud or sandy banks at the edge of a water-hole. There they pick up small insects, just as the Dotterels do. Most of their food appears to be gathered from the aquatic plants and leaves, and not in the water itself.

They are most fascinating little birds to watch. Never long still, they flit from spot to spot, uttering their shrill and not unmusical call the while, their legs, with long toes folded together, outstretched behind them, giving the idea of a long, pointed tail. Owing to this, in flight they have almost the appearance of a Rainbow-Bird.

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* *Irediparra gallinacea.*

Nests which I have seen, and others which have been described to me, consisted of bits of grass, rushes, water-weeds, etc. They were flat and open, and contained either three or four eggs.

Early one October I watched a pair of adult Lotus-Birds with three young ones, which were unable to fly, taking long strides across the weeds and lily-leaves in a narrow lagoon where they are always to be found. The little ones seemed awkward, and frequently bogged knee deep, and had continuously to balance themselves with their wings in an effort to keep from sinking into the water, as they followed closely on the trail of the larger birds. They made one think of children paddling and trying to keep their clothes dry.

Mr. R. Barling, Junr., who, living on the edge of the big swamp, Casino, was very familiar with the Lotus-Bird, and took particular interest in it, told me that some years ago (presumably before the greater part of the swamp was drained), Lotus-Birds were to be seen there in hundreds. He had invariably found the eggs (usually four) placed on a large leaf, with no attempt at nest-making. A peculiarity of the eggs is that they will float; if accidentally rolled from the breeding-site they do not sink, and the bird will usually gather them back again.

Although not often seen swimming, the Lotus-Bird will occasionally do so. Occasionally a bird may be met with on a small island of lily-leaves, with no other vegetation near. Then, if shot at or wounded, it will sometimes glide quietly from the leaves into the water, diving out of sight for possibly a minute. Mr. Barling has also seen Lotus-Birds glide from their eggs when a Hawk was hovering above them, and sliding off the lily-leaves, dive from sight. Presumably the habit of diving is never used as a means of gathering food, but merely as protection in time of danger.*—FLORENCE M. IRBY, Casino, N.S.W. (August 20, 1927).

* * *

Distribution of Magpies.—If we assume that the White-backed Magpie (*Gymnorhina hypoleuca*) belongs to the older forested hills of eastern Australia and the Black-backed Magpie (*G. tibicen*) to the younger tertiary plain country inland, there must theoretically be localities where the two species overlap.

In a recent trip by train to Nhill (Victoria) I took note of the birds that could be readily identified near the railway line. The White-backed species only was seen until beyond Glenorchy, 162 miles out, where the gold-bearing ridges of central Victoria are left behind. Here three Black-backed Magpies were seen, in company with a party of Red-backed Parrots (*Psephotus hæmatonotus*). Further on, in a fallow paddock, where cultivation was in progress, four Black-backs and one White-back were together in one party, but in the same field was a pair of Black-backs and also a pair of White-backs.

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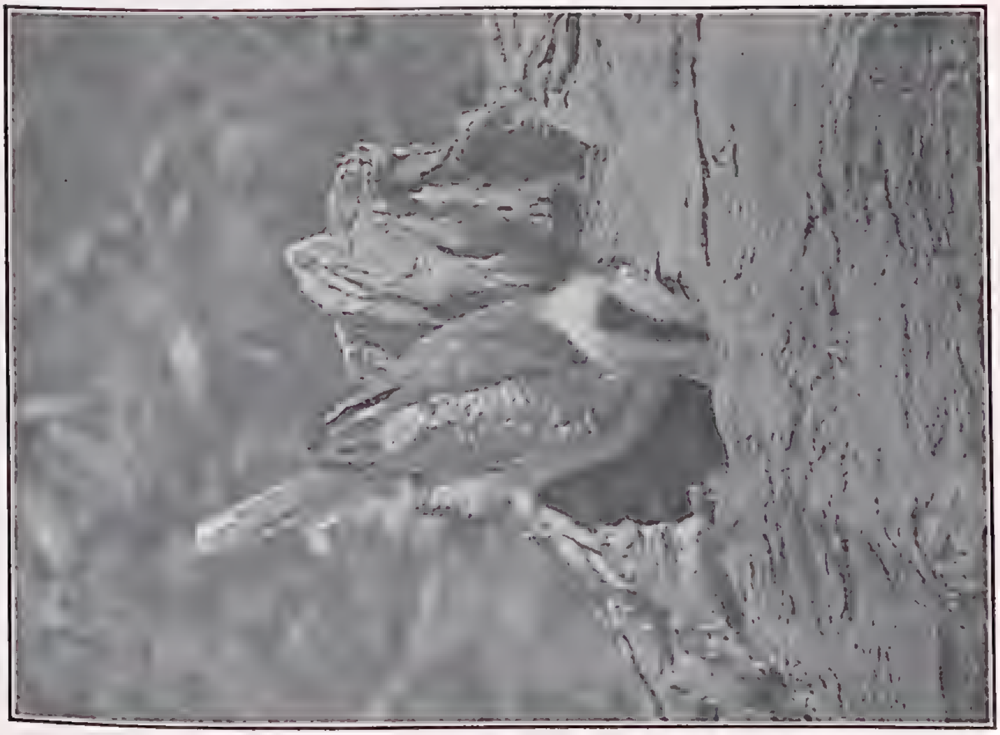
* What is to be said of a remarkable note on the diving of the Lotus-Bird given by Carl Lumholtz in his book *Among Cannibals* (London, 1889)? He remarks (p. 23) that when at Gracemere, Central Queensland, he was puzzled at sudden disappearances of young Lotus-Birds, until one day he saw two young ones dive under the water and hold themselves fast to the bottom. "I watched them," he adds, "for a quarter of an hour before taking them up."—EDITOR.

Just outside Horsham, 203 miles, were three White-backs together and one solitary Black-back, also eight White-backs in three parties, and three Black-backs singly. During the next ten miles two couples were noted, in each of which one specimen was pure white on the back and the other distinctly black. Finally, the Black-backed species was the sole representative. In the strip of country from Glenorchy to Dimboola, a distance of sixty-three miles, the actual count was twenty-eight White-backed Magpies and twenty-nine Black-backed Magpies.—A. G. CAMPBELL, Kilsyth, Victoria (September 10, 1927).

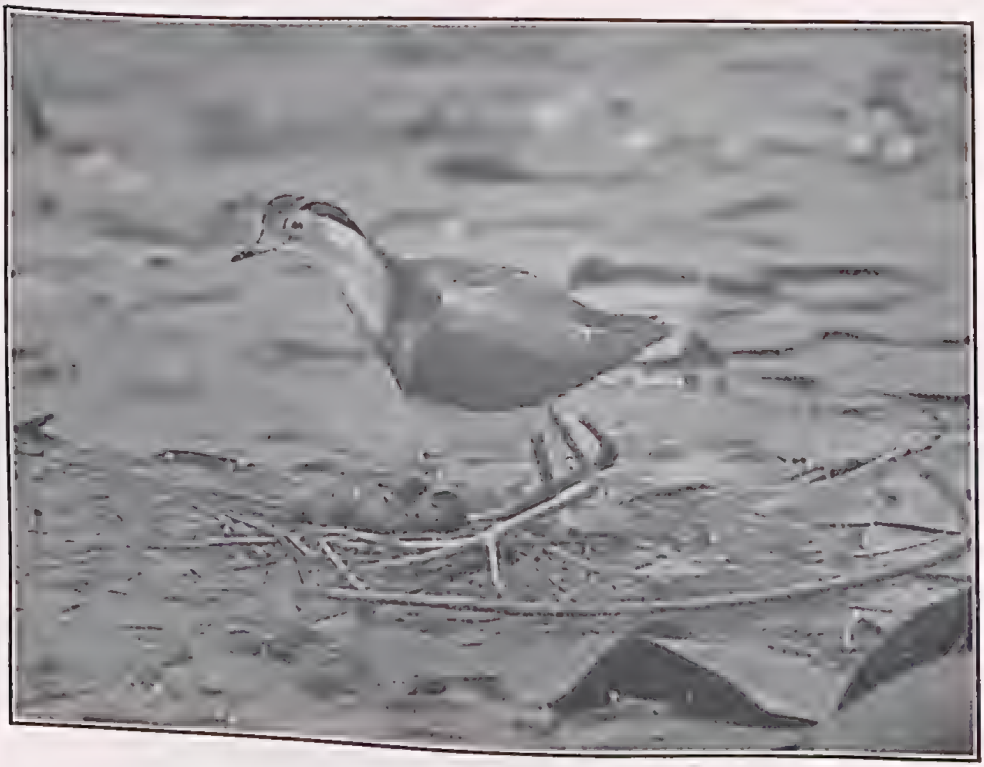
* * *

Spring Migrants.—On August 22 the Fan-tailed Cuckoo began his trilling notes in a tree just across the road, and on the 23rd the migrant Pipits appeared in a paddock near the beach. The first Welcome Swallows were seen near the Mersey River on August 29, but were not plentiful until September 3. On the same date in August (29th) the Tree-Diamond (*Pardalotus affinis*) was calling "Pick-it-up" from the gum just at the back of my cottage, whence he announces his arrival each spring. Neither Pallid nor Bronze Cuckoos have been heard so far (September 13). Yesterday I went to Bell's Parade, about six miles up the river, to see the magnificent trees of silver wattle in full bloom, and noticed that the nest of the Satin Flycatcher (*Myiagra nitida*), built last year on a slender fork of tea-tree overhanging the creek, was still *in situ*. Once I fancied that the call of this beautiful species was heard, but the day was gloomy and somewhat cold, and the call was not repeated. That interesting resident species, the Olive Whistler (*Pachycephala olivacea*) was uttering constantly his strange "I'll whit you" from a thick patch of scrub.—H. STUART DOVE, West Devonport, Tasmania (September 13, 1927).

Correction.—On Plate 5 of the last (July) issue of *The Emu* the titles of The Mewstone and Central Maatsuicker Islands became transposed.



KOOKABURRA AT NESTING HOLLOW. (See page 119.)
Photo. by D. Dickison.



LOTUS-BIRD TENDING EGGS. (See page 122.)
Photo. by W. G. and R. C. Harvey.

NATIONAL MUSEUM [illegible]

From Magazines.

Rock-Warblers in a House.—The following remarkable story is extracted from the Nature column of Sydney *Daily Telegraph*:—

We have had some very interesting notes recently regarding the tameness of certain wild birds near Sydney. Now comes a most appealing story on the subject from Miss Ruth Schleicher, of Hazelbrook, on the Blue Mountains. It concerns a pair of the charming little grey-backed, reddish-breasted birds known as Rock-Warblers.

"All through the winter of 1923," says Miss Schleicher, "these two birds were in and out of our house, not in the least disturbed by our goings and comings. They cleared the flies from our living-room, searching for them round the walls, and climbing the cord of the electric lamp to catch any resting there. They investigated our plates, taking beakfuls of whatever pleased them, chiefly butter from the bread.

"One (presumably the hen) for a time was quite infatuated with her reflection in a mirror, and spent hours on and off parading before it, scarcely taking time to get herself food. Presently she rather tired of the mirror, but still visited it sometimes, and one day showed it to her lord and master—then there was trouble!

"In the spring they decided to build their nest in the photographic dark-room opening on to the back verandah. They commenced to build on September 8, and finished the nest on September 14. For its construction they used spider-web, bark, string, and frayed rope chiefly. First they built a long, narrow strip from the roof, and from that suspended a bulky mass of material; then, with the latter as a base built up the egg-chamber, with its side entrance towards the door.

"When the nest was finished the birds took a week's holiday, and on September 22 the hen began to sit; three weeks later (on Octobr 13 or 14) the two babies hatched out. All this time the dark-room had been in use, but they unconcernedly went their own way. The cock never fed the hen whilst sitting, and at frequent intervals both birds left the nest unattended.

"After the first few days both parents went away at night and left their little ones; so, for fear rats might harm them, we shut the door at night.

"In the early mornings, when the parents returned to feed their babies, they were very indignant to find the door shut. They knew what to do, however, and always if we were not yet up came and awakened us scolding violently until someone got up to open the door, when hurriedly they would make for the door and sit there until it was opened by the lazy human.

"On November 2 the young birds left the nest, and on November 19 the parents commenced furbishing up the nest for a new brood. By November 27 they were sitting again, and on December 15 three babies hatched out.

"This time operations were speeded up somewhat, and on December 31 the first little one left the nest, the other two following on January 1, 1924, and entertaining us greatly with their antics.

"The second brood was fed more lavishly than the first, which had only received meagre supplies during the first week of their life; their chief diet seemed to be moths, with a few other insects and spiders.

"When the owner of the dark-room made use of it in the daytime, shutting the door for a little while, the parents were loud in their indignant protests. They hopped about outside, scolding so energetically that the poor owner inside felt quite nervous, and their angry scolding did not cease even when the door was opened.

"On one occasion one parent was found perched on the top of a basket of chickens in the kitchen, scolding the poor little things for being there.

"One day one of the Rock-Warblers had a fight with a mantis, which it had caught on the verandah. The mantis made it let go, and then, standing high on four legs, with thorax erect, and front legs outspread like arms, it faced the Warbler. The latter tried to make a rear attack, but as it went round so did the mantis, slowly revolving on its four legs, always facing the bird. At last the Rock-Warbler flew on to the verandah-rail and scolded loudly, and then flew right away—conquered by a mantis!

"During March the Warblers came back and carefully shut up their house, closing the entrance with cob-web, threads of rope, etc., and so left it.

"We hoped they would return, but, though their nest still awaits them, four years have passed and we have never seen them since."

* * *

Lyre-Bird Queries.—Mr. Donald Macdonald wrote in the Melbourne *Argus* of August 19, 1927:—"There are some few points connected with the life habits of the Lyre-Bird about which Mr. A. H. Chisholm, who was in Melbourne last week, told me he and other observers in Sydney have so far failed to get any definite evidence. The first of these is whether the male bird gives any assistance in the choice of a nesting-site or the building of the nest. The second is whether the male bird helps with the feeding of the young when they are hatched, and whether the male is polygamous. Mr. Chisholm suggests that the questions should be asked so that readers of these notes may have the opportunity of offering any observations bearing upon them. Personally, I have never had an opportunity of watching the Lyre-Bird building the nest, but I have repeatedly visited and watched nests in which a young bird was being fed. The hen had got so accustomed to being watched that she never hesitated about feeding the young one, even when we stood in full view within a few yards of the nest. I never saw a male bird feed the young, and only in one instance did I see a male close to this particular nest. There were many Lyre-Birds in the locality, and this one was possibly fossicking for food in the usual way. Another question in doubt is whether the hen birds ever pose on the display mounds. I have never seen one do so. Quite recently several experienced bird-observers have suggested that the site of a Lyre-Bird's nest—the new one seldom far from the old one—is actually selected and a foundation laid a year before the nest is built or used."

Replying to the above queries, Mr. T. Tregellas wrote in the same journal on September 2:—"I have no hesitation in saying that the male Lyre-Bird gives no assistance whatever in the choice of a nesting-site or in the building of the nest. He is not even the architect on the job. He is only an ornament in the locality. Nor does he help with the feeding of the young. He even declines to feed the sitting hen, and for that reason she frequently leaves the nest for half a day at a time and forages for food. He rarely ventures near the sitting hen, but is a proud father when she notifies him that she has made a success of her incubation. He is monogamist beyond all doubt, and keeps to his partner for life. The birds are gregarious in the off season, but they break away in pairs when the time for nesting approaches, and there is then jealousy of interlopers. In regard to the hen posing on the mound, this season for the first time I saw a hen on the mound, but she was not alone. She came in answer to the vehement call of her mate, but made no display whatever, merely standing and watching him."

It has been suggested that the Lyre-Bird picks the site of its nest a season in advance, and puts in a foundation for building on in the following year.* On this point Mr. Tregellas writes:—"There is no rule in regard to the nest foundation. I have had all sorts of experiences in regard to this. Sometimes a nest is built on a foundation laid the previous year, sometimes on one laid years before. This season one was built on a place where a nest decayed five years ago. Last year one was built on a stump where a beginning was made two years before. No guarantee can be given as to when and where they will build. The nest takes about a month to complete, and often remains a fortnight before the egg is laid. The egg is laid sometimes a week or two before being sat on, and the hen never seems in a hurry about anything."

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* See page 117.

Ways of Emus.—In the course of some interesting notes in a Sydney newspaper, Mr. S. T. Turner, of Geurie, N.S.W., says that the Emu sometimes drinks by standing in the water and using the beak shovel-fashion. Concealed near an outback tank, he has often watched the birds drinking. Once he counted 70 mouthfuls as one bird's drink. Each mouthful would be about a tablespoonful of water.

"The Emu's method of negotiating a fence always amused me," adds Mr. Turner. "The birds charge straight forward at the fence. Sometimes they are thrown back many yards, but sometimes the wires are broken, and the bird gets through. If unsuccessful at the first attempt the bird gets up and tries again, until it tumbles through. Occasionally a bird becomes entangled and loses its life."

The Emu, it is pointed out, is a speedy bird when in good condition. Motorists have claimed that it requires a speed of 45 miles per hour to head the bird.

When pursued by a dog the birds "bail up," and use the feet to some purpose. But an experienced dog catches the foot and upends the bird, which is then powerless. The thigh bones are very brittle, and a wounded bird soon breaks this bone, thus rendering itself helpless.

The curiosity which often led to the bird's destruction in the past is rapidly disappearing. The present generation do not readily approach a car or person waving a handkerchief or kicking his legs.

* * *

A Remarkable Nest.—Mr. Donald Macdonald wrote in the Nature Notes of Melbourne *Argus* (July 12, 1927):—"I have seen many unusual birds' nests, but the most remarkable is sent by Mr. Harold Lloyd, of Leongatha, who got it from Miss Chalmers, of Neerina school. The nest, which was found by Miss Chalmers under a pine tree, was in its original form built by a Black-and-white Fantail, which must have died while brooding, because when Miss Chalmers found it there were three eggs under the dead bird, which unfortunately got broken. How long the dead bird remained on the nest is a matter of conjecture, but another Fantail built a second nest directly on top of the bird's body, fastening it down to the beak and wings, which are still perfect, though the tail feathers have disappeared.

"Another curious thing is that the poise of the bird on the nest is rather that of a living than a dead bird, the beak being well up in the air. Both nests are perfect, and well finished, and a brood has apparently been hatched in the upper one. When you consider that the building sites available to the second or upper story Fantail were unlimited, it is remarkable that one so strange should be chosen. It shows that the bird has no imagination."

Correspondence.

FIELD CHARACTERS OF THE GREY PLOVER.

(To the Editor.)

Sir.—In *The Emu*, Vol. XXVI, p. 315, Messrs. A. M. Morgan and J. Sutton state:—"As the migratory waders are, almost without exception, in the non-breeding plumage it is well-nigh impossible to identify a bird such as this," referring to the Grey Plover (*Squatarola squatarola*).

Whilst I agree that in many cases it is difficult to identify waders in non-breeding plumage, it so happens that the Grey Plover is one of the easiest members of the group to distinguish. The only bird with which a competent observer could confuse it is the Golden Plover (*Pluvialis dominicus*). Even when the bird is settled I have found it quite possible to recognize the larger size and greyer colour of the Grey Plover, and directly it flies the white in the wing and especially the black axillaries are conspicuous, and make it impossible to mistake it even a hundred yards away.

I have never seen the Grey Plover in Australia and can only assume that Messrs. Morgan and Sutton are unfamiliar with it in life. The recognition-marks in this species, as is so often the case in birds, are concealed when the bird is settled. They are, of course, equally inconspicuous in the skin with the wings folded.

The most recent books on the birds of the British Isles and of North America include under each species a section entitled "Field Characters" or "Field Marks." Reference to Witherby's *Practical Handbook of British Birds*, 1923, Forbush's *Birds of Massachusetts*, 1925, or Taverner's *Birds of Western Canada*, 1926, will show that none of these authors agree with Messrs. Morgan and Sutton as to the difficulty of recognizing the Grey Plover in the field.

Yours, etc.,
W. B. Alexander.

Croydon, England.
June 24, 1927.

DECEPTION AMONG BIRDS.

(To the Editor.)

Sir.—In *Chambers Journal* (May, 1927) is an article by Mr. Douglas Dewar in which he asserts that in the case of birds that indulge in strange antics when one approaches the nest: "It is not correct to speak of such procedures as feigning injury. The bird is deliriously excited and has a fit. She does not know that she is behaving as though injured, much less is she deliberately trying to deceive."

While I have not read the reasons which he states are given in his *Birds of India* book, and while reluctant to advance my limited observations against those of one who is doubtless a skilled observer, I think many will agree the above is a sweeping statement to make. Without going into the question of whether any bird or animal is conscious of what it does in a human sense, I believe some birds are just as capable of deliberately trying to lead an enemy from the nest as a fox is of running in water or a hare who "doubles to mislead the hounds."

I have watched a Dusky Robin (*Petroeca vittata*), while I was engaged near its nest, indulge in fluttering and broken-wing antics almost continuously for 20 to 30 minutes at a time. If I followed, it would fly another 10 or 15 yards and repeat the antics, and so on until I was perhaps 50 to 80 yards away. Then it would fly back more or less towards the nest and perch. The action was too sustained to mean "delirious excitement;" in fact, the Dusky Robin is not an excitable bird. It appeared a deliberate and methodical attempt to get me away.

Curiously enough, while all or almost all these birds in one district (Circular Head), where I used to watch them, had this habit, I have not noted it in the same bird nesting in this district.

Are all such and similar antics to be called "nerves" in future?

Yours, etc.,
B. ANDERSON.

Westbury, Tasmania.
July 26, 1927.

[Mr. Dewar's view on this interesting question is an echo of that held by the late W. H. Hudson, who laid it down that it would be a great mistake to suppose that the bird, when fluttering on the ground to lead an enemy from the neighbourhood of its nest, is in full possession of its faculties, acting consciously, and itself in little danger of capture. "When the bird drops to the earth," he says, "its pain has caused it to fall as surely as if it had received a wound . . . . and when it flutters on the ground it is for the moment incapable of flight, and its efforts to recover flight and safety cause it to beat its wings, and tremble, and gasp with open mouth." But most Australian observers will agree with Dr. Anderson, and hold that both Hudson and Dewar are wrong. Anyone who has studied the domestic habits of such birds as the Dotterels, the White-fronted Chat, the Yellow-tufted Honeyeater, and sundry other "deception artists," must have become convinced that these birds deliberately feign injury. Such a bird is not only able to recover flight immediately it desires, but it will fly back to the vicinity of the nest, if it feels impelled to do so, and repeat the performance again and again. Manifestly, then, it is quite erroneous to say that such a bird has a fit, or that it flutters its wings merely in an effort to regain flight. It makes no attempt to regain flight until well away from the nest, and then does so in an instant, apparently without effort.—EDITOR.]

Review.

Dr. A. L. Thomson's "Birds."—Messrs. Williams and Norgate, the London publishers, have included in their cheap pocket-books of the Home University Library a new work by A. Landsborough Thomson, D.Sc., succinctly titled *Birds.* This little volume does all that it pretends to do, which is to give a general account of the characteristics of birds as living creatures, and provide an incentive to the further study of a fascinating subject. Dr. Thomson not only writes well, but he has a broad and sound grasp of his subject. One or two of his points regarding Australian birds may be open to question—as when he suggests that only the male Bower-Bird builds a playground—but there is certainly nothing seriously wrong in this very useful and entertaining little book. It is of interest to note that the author sets an example of "lumping" that might be worth following in regard to the vernacular names of birds. The black-headed gull, for instance, is written by him "blackheaded-gull;" the lesser black-backed gull becomes "lesser-blackbacked-gull;" the great spotted cuckoo is the "great-spotted-cuckoo;" and so on.

Obituary.

Dr. E. W. FERGUSON.

Natural science lost a valuable worker and Australian naturalists a firm friend and colleague by the untimely death of Dr. Eustace W. Ferguson, who died in Sydney on July 18, 1927. Some 25 years ago, when I was chatting with the veteran Curator of the Macleay Museum, George Masters, he was loud in the praise of a young undergraduate who was bringing him for determination beetles captured around Sydney and the Blue Mountains that he (Macleay's most famous collector) had never seen. Many companions of Dr. Ferguson in those bush rambles so dear to the nature lover have made similar comments as to his unusually developed powers of close observation. The tiniest insect, the least detail of vegetable and animal life, was noted, which the ordinary person or many a skilled naturalist passed unnoticed. His love of birds led him into a deep knowledge of Australian ornithology, and he wrote many informative papers on the subject in *The Emu* and other journals.

He soon made a name for himself amongst naturalists, first as a collector of and systematic worker with coleoptera, later (as his medical studies indicated) on Australian flies, especially mosquitoes and other biting flies. For some years he has been recognized by scientific circles as *facile princeps* amongst medicinary entomologists, so that he was selected to lecture on this subject to the Pan-Pacific Congress held in Sydney in 1923. Last year, as President of the Linnean Society of New South Wales, his address—written while the dread Bright's disease held him in its grip—was a model epitome of the work done to the present date in this wonderful theatre of work—a work that is making safe the tropical world to the white man. Only twelve months ago the writer was one of a happy band of science pilgrims to the A.A.A.S. Congress at Perth. On this journey, and on the long expeditions organized by our hosts, Eustace Ferguson was always to the fore, delighting in the splendour of wild flowers, insects, and birds now seen for the first time in their own habitat. He contributed many papers to the Linnean and other scientific societies of Australia on his favourite subjects, and was the authority on the Phalidurine or ground weevils, peculiar to this continent—a group that had greatly puzzled previous workers, many of which he described, some discovered by himself. Of late years he wrote chiefly on the classification of Australian Diptera (flies), and an extensive addition to our knowledge of these has already resulted; alas, but a fraction of what we had hoped had he been permitted the ordinary span of man's life.

Born in New Zealand in 1884, graduating in Sydney in 1908, Dr. Ferguson entered the Department of Public Health in 1913. From 1915-1918 he served in the Australian Army Medical Corps in France and Palestine. In 1920 he succeeded Professor Cleland as Microbiologist to the Department of Public Health. Here his naturalist's eye could classify the microbe or bacillus with the same accuracy as in the larger scale of nature. His many friends will lament the untimely passing of a thoughtful and genial companion, whose wide reading and kindly temper made him welcome within or outside the house. A wife and six children, five sons and a daughter, mourn his loss.—H. J. CARTER.

Council Meetings, R.A.O.U.

At the June meeting of the Council deep regret was expressed at the death of Mr. H. L. White, and the action of the General Secretary in forwarding a letter of condolence to Mrs. White was endorsed.

It was decided to communicate with the Tasmanian Government, asking that steps be taken to protect Cape Barren Geese, and with the Chief Secretary of Victoria stating that the Union strongly opposes any recurrence of the general open season for opossums.

The following motion was also agreed to unanimously:— "That, in view of the frequent requests for open seasons, and for the removal of protection of fauna, the R.A.O.U. urges the Chief Secretary of Victoria to appoint an Advisory Committee from Natural History Societies or to at least consult the societies before action is taken."

It was agreed that the names of members whose subscriptions are two years in arrear should be removed from the roll. The Council expresses the hope that members whose subscriptions are in arrears, usually as a result of mere neglect, will render it unnecessary for the foregoing decision to be acted upon.

Five new members were enrolled.

* * *

At the meeting of the Council held on 13th July a memorial minute was approved placing on record the various gifts for which the Union is indebted to the late H. L. White, and of the Union's deep sense of gratitude therefor.

It was decided to send a strong protest to the Customs Department against the importation of birds from other countries to Australia. The secretary was also instructed to forward to the Chief Secretary of Victoria a protest against the use of Galahs for trap-shooting in the northern parts of Victoria.

Dr. J. A. Leach drew attention to the practice of the Defence Department of providing Emu feathers for the head-dress of certain Australian troops. It was agreed that the Department should be asked whether the use of such feathers was considered essential.

Dr. Leach reported that further efforts were being made to obtain Lyre-Birds for liberation in Tasmania, and the secretary was instructed to apply for the necessary permit from the Chief Inspector of Fisheries.

Messrs. J. A. Ross and A. G. Campbell were appointed to represent the R.A.O.U. on a deputation to the Chief Secretary regarding game protection.

Four new members were enrolled.

* * *

The August meeting of the Council was held on the 8th of that month at the new rooms of the Union in Latrobe Street, opposite the Museum. Satisfaction was expressed at the appearance and convenience of the room, and the thanks of members were tendered to Mr. Favaloro, whose energy had resulted in the premises being obtained. The work done by a few members and others in connection with the task of removal from Flinders Street was also appreciated.

Delegates of the Union who attended a deputation to the Victorian Chief Secretary reported that the Minister had promised to give sympathetic consideration to the requests made for stricter protection and for the appointment of an Advisory Committee.

The Commonwealth authorities wrote stating that investigation had been made of a newspaper report that aeroplanes had been used in the interior from which to shoot Emus, and it was believed that the report had no foundation in fact.

In connection with the bait used by fishermen for crayfish pots, it was decided to ask the State authorities to arrange that the licenses issued to these fishermen should be indorsed with suitable extracts from the game laws.

A letter was received from the Defence Department giving the reasons for which it was considered desirable to continue the use of Emu plumes in the head-dress of Light Horse Regiments. Members expressed the opinion that the time had arrived when the practice could be dropped with advantage.

* * *

A special meeting of the Council was held on Tuesday evening, August 16, in order to meet Mr. A. H. Chisholm (editor of *The Emu*), who was in Melbourne for a few days. There were twelve Melbourne members of the Council present. Mr. Latham, of the Society for the Prevention of Cruelty to Animals, also attended. Dr. Leach presided.

The early part of the evening was occupied by a general discussion on the habits of Lyre-Birds, which are receiving considerable attention, both in Sydney and Melbourne. Mr. Chisholm showed some very fine pictures taken by him near Sydney.

Mr. Latham drew attention to the fact that skins of protected animals, etc., are still being exported in large quantities, and suggested that the Commonwealth Government be urged to assume control of fauna preservation. Steps have been taken already in this direction, and the support of the Union will be sought at the proper time.

Later in the evening Mr. Chisholm expressed the views of some inter-State members on questions affecting the management of the Union. Stress was laid upon the need for amendment of the Articles, and Mr. Chisholm undertook to consult other members of the sub-committee appointed at last Congress and to forward concrete suggestions for consideration.

The printing of *The Emu* was also discussed, and general satisfaction was expressed at the appearance of the last number, which was printed for the first time by *The Australasian Medical Publishing Co., Ltd.*, Sydney.

The evening was a very pleasant one and served to show that personal visits, such as that of Mr. Chisholm, do much to clear away misunderstandings and to promote the welfare of the Union.

Great Barrier Reef Expeditions.

Already more than thirty persons interested in the birds, turtles, fishes and coral animals of the Great Barrier Reef have intimated their intention of participating in one or other of the two nature study excursions organized by Mr. E. F. Pollock, R.A.O.U., to visit the islands of the Bunker and Capricorn groups, off the coast of Queensland, at the end of this year.

All the islands visited by the R.A.O.U. expedition in 1910, *viz.*: Masthead, North-west, Heron, Erskine and Tryon Islands, and North Reef, will again be explored, and, in addition, Lady Musgrave, Fairfax, Hoskyn, One Tree and Wreck Islands will be visited. No systematic survey has hitherto been made by ornithologists on the last-named group. It is known that there is a large colony of Brown Gannets or Boobies on Hoskyn Island, and doubtless each of the others will prove to be the breeding haunts of various sea-birds.

The first expedition, leaving Sydney on 13th November, and Bundaberg two days later, is already filled, and includes representatives of every State of the Commonwealth except Western Australia. Several members of the R.A.O.U. are taking this opportunity of visiting the fascinating atolls.

The second excursion has been timed to suit the convenience of teachers and others who can only make the trip during the summer holidays, and will leave Sydney on December 27. It will cover the same ground as the earlier one, and any members who cannot complete the whole period of 26 days on the islands can be landed a few days earlier. Mr. Pollock, whose address is at 7 Carrington Avenue, Strathfield, N.S.W., states that there are still vacancies in this second party.

Notes and Comments.

Probate was granted in July of the will of the late Henry L. White, of "Belltrees," Scone, N.S.W., the distinguished member and financial supporter of the R.A.O.U., who died on May 30, leaving an estate of the net value of £160,850, of of which £128,049 represented an interest in a partnership. The testator, who was 67 years of age, appointed his son, Alfred Henry Ebsworth White, his brother, Arthur George White (both of "Belltrees"), and Arthur Charles Ebsworth, solicitor, of Sydney, his executors and trustees. He bequeathed to his widow, Louisa Maude White, £1,000, to be paid to her out of the first moneys coming into the hands of the trustees, the sum of £2,764 standing to the credit of his current account in the bank, the household furniture and effects, and the use and enjoyment of the homestead at "Belltrees" during her life. He left his collection of birds' eggs and nests, except that made by him in his boyhood, to the National Museum, Melbourne, a legacy of £15,000 each to his daughters, Dorothy Ebsworth Minell and Norah Ebsworth Hordern; £1,000 each to an employee, Sydney William Jackson, his solicitor, Arthur Charles Ebsworth, the Scott Memorial Hospital at Scone; and the income of £1,000 as an addition to the stipend of the Anglican clergyman of the parish of Gundy, in the diocese of Newcastle. After making other bequests, the testator directed that the residue of the estate should be divided into equal parts, one of which was to go to his son, A. H. E. White, absolutely, and the income from the other part paid to his widow during her life. After the death of testator's widow the second part was to pass to A. H. E. White.

* * *

It has become sadly apparent in recent years that many of the most beautiful of Australia's Parrots have become alarmingly rare. Because of this fact, *The Emu* has devoted considerable space to these birds of late. In the last few issues particularly, attention has been paid to the small Parrots of the genus *Neophema*. The Scarlet-chest, Blue-winged, and Orange-breasted species have been illustrated in colour, with accompanying notes. In the present issue a coloured plate is given of the Bourke and Turquoise Parrots, with notes by students of these rare species. The genus will be completed later with a coloured plate of the Rock and Elegant Parrots. It is probable that, subsequently, the *Polytelis* group of Parrots will also be figured in colour. All paintings are rendered free of charge by the artist, Mr. N. W. Cayley.

* * *

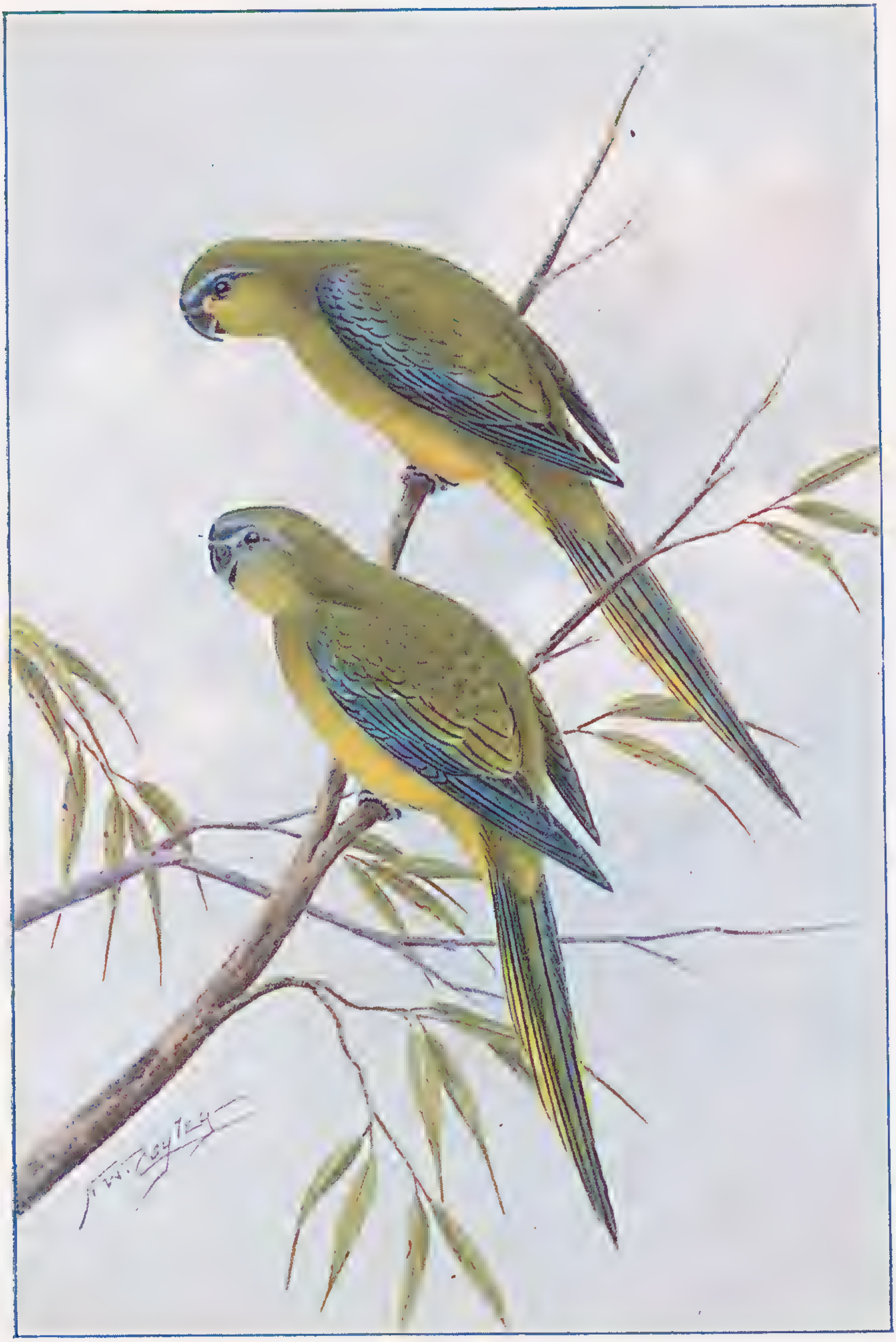
Captain S. A. White, of Adelaide, a former president of the Royal Australasian Ornithologists' Union, was married in Sydney on July 12, 1927, to Miss Muriel Fisher, daughter of Mr. and Mrs. George Fisher, of Back Tenandra, Armatree, N.S.W. The newly-married couple subsequently embarked on a tour abroad.

* * *

The address of the headquarters of the R.A.O.U. is now 168-170 Latrobe Street, Melbourne. All matter intended for *The Emu* should be addressed to Mr. A. H. Chisholm, *Daily Telegraph*, Sydney.

Date of Publication of this part of *The Emu*, October 17, 1927.

NATIONAL MUSEUM MELBOURNE



GRASS-PARROTS.

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(*Upper*): Elegant Parrot. ♂ *Neophema elegans.*
(*Lower*): Rock-Parrot. ♂ *Neophema petrophila.*

The Emu

OFFICIAL ORGAN OF THE
ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION

"Birds of a Feather."

VOL. XXVII] JANUARY, 1928. [PART 3

The Elegant and Rock Parrots.

By A. J. CAMPBELL, C.M.B.O.U., Melbourne.

(See Coloured Plate.)

THE recognized habitat of the charming little Elegant Parrot (*Neophema elegans*) was originally the southern portion of Australia. Of recent date G. M. Mathews' specimen came from Melton, Victoria. In the Mt. Compass district of South Australia, Edwin Ashby saw several small flocks. He says: "They are evidently resident in the district throughout most of the year." There are specimens in the "H. L. White Collection," from south-western Australia, to which Mathews has assigned sub-specific distinction (*N. e. carteri*).

Little information is available respecting the species. Indeed, some members of this beautiful genus, especially the females, are so much alike in the field that it is difficult to state with certainty to which species they belong. Therefore, except a specimen be procured, it is better not to record rare species merely from observations in the field. We recently had a bird restricted to eastern forested parts recorded for the dry Nullarbor Plain, Western Australia (*The Emu,* XXVII, p. 81), while one from the interior region was reported near the coast of New South Wales (*ante,* p. 14). It would be just as improbable to state that the Spinifex, or Night, Parrot (*Geopsittacus occidentalis*), was seen in Gippsland.*

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* Mr. Campbell's Scotch caution does him credit, but it appears to have led him astray in the present case. Mr. J. H. Wright, of the Australian Museum, states definitely that he handled two male specimens of Turquoise Parrots (*Neophema pulchella*), near Ooldea, on the Nullarbor Plain, but neither was fit to be made into a skin. Mr. Campbell's second objection appears to be to Miss F. Irby's record of the Scarlet-chested Parrot (*N. splendida*), in eastern N.S.W. Miss Irby, however, is a keen observer as well as a painter of birds, and is not likely to have erred in regard to a bird which she had already seen in western N.S.W. Moreover, the period was a droughty one, when many western birds approached the coast. The Scarlet-chested Parrot was also shot and identified last year not many miles due west of Miss Irby's locality. It is idle, therefore, to compare such records to the finding of the Night-Parrot in Gippsland—an impossibility.—EDITOR.

Why have some of the *Neophema* disappeared in parts, or are fast disappearing? Doubtless, chiefly caused by domestic cats gone wild. Over-sentimental people who talk much about "proper bird protection" and will not first face the "cat question," are not logical.

Dr. A. M. Morgan, Adelaide, in the region of Port Augusta observed two nests of this Parrot, each with five eggs. (Gilbert, in *Gould,* states the maximum is seven—?). Strange to say, with one of the clutches was an egg of the Owlet-Nightjar (*Ægotheles cristata*), and stranger still the lot were sterile.

It may be mentioned as a general guide that the Elegant Parrot is the most yellowish member of the little group and good field characters are its two very distinct shades of blue, on both forehead and shoulders.

The Rock-Parrot is darker plumaged and is the least striking member of its beautiful genus. Its range, as the Check-List roughly indicates, extends from Shark Bay, Western Australia, to Cape York Peninsula, South Australia, preferably the rocky islets off the coast, where it nests.

I had the privilege of observing these small Parrots at home on certain islands off Western Australia. It is a rare picture to witness a pair of these lovable little creatures, in their golden-green plumage, perched on the face of a limestone crag, amid rugged and romantic surroundings. The birds make no nests, but simply deposit four or five eggs under slabs of indurated sand or limestone, where the eggs are sometimes difficult to reach, especially if a crevice on a steep side slopes to the water's edge.

During an expedition of the R.A.O.U. to Eyre Peninsula, South Australia, October, 1909, Rock-Parrots were noted nesting in numbers on a treeless islet in Mellidie Bay. (For further particulars see *The Emu,* Vol. IX, p. 131; also pp. 133-5, and Pl. 12.)

Birds Carrying Birds.—Instances of birds carrying their young, or carrying other adult birds, are not common in Australia. Interest attaches, therefore, to the following note, sent me by Stanley Petersen, a lad living near Kingaroy, Queensland: "One day as I was walking past an old apple tree, which had four birds' nests of different kinds in it, I heard the sudden chirping of a flock of Babblers. As I looked up one of the birds fell, and all the rest swooped down and stood around the one that fell. They kept this position for a while; then two of them walked forward, one taking a grip by the neck on the bird that fell and the other by the tail. They then flew up to the tree, and stood the one that fell on a branch beside them. After a while all the birds flew away, and the one that fell was among the rest."—A. H. CHISHOLM, Sydney (December 12, 1927).

Proceedings of the Twenty-sixth Annual Congress of the R.A.O.U., Perth, 1927.

The Twenty-sixth Annual Interstate Congress of the R.A.O.U. was opened at the Western Australian Museum, Perth, on Tuesday, October 18, by the Hon. J. W. Hickey, M.L.C. (Honorary Minister administering the *Game Act*). On the previous day the members were tendered a civic reception by the Mayor of Perth (Mr. J. T. Franklin), and later were received at the Zoological Gardens, South Perth, by Mr. H. A. Pilgrim and Lt.-Col. E. A. Le Souef on behalf of the Acclimatisation Committee.

The following members and visitors attended the Congress: New South Wales: Dr. A. Chenery and Mr. A. S. Le Souef; Victoria: Mrs. J. W. Israel and Miss A. F. Smith; South Australia: Messrs. E. Ashby, F. W. Coleman and H. A. Stevens, and Mrs. L. A. Stevens, Mrs. E. Ashby and Miss A. M. Ashby; Western Australia: Lt.-Col. E. A. Le Souef, Messrs. F. Lawson Whitlock, L. Glauert, O. H. Lipfert, F. R. Bradshaw, D. L. Serventy and James Pollard. Many members in all States sent apologies for absence, and greetings. The retiring president (Mr. Ashby), occupied the chair, and during his absence Dr. Chenery (vice-president), presided.

OFFICIAL OPENING.

In a brief welcoming address the Minister (Mr. Hickey) congratulated the Union on the valuable work it was doing. The study in which members were engaged, whilst it was fascinating to themselves, was also very useful to the State and the Commonwealth. At the same time it did not lend itself to the spectacular and there was not much publicity about it. Therefore all the greater appreciation was due to those who gave their attention to the science.

Dr. J. S. Battye (General Secretary of the Public Library, Art Gallery and Museum), on behalf of the trustees invited members of the congress to make full use of the collections of the Museum during their deliberations. The protection and proper use of bird-life, he said, were matters of great importance, and he did not think there was any body better charged or more competent of being charged with the care of it than the R.A.O.U.

Responding, Mr. Ashby made reference to his recent trip in the Geraldton district and said he was overwhelmed by the great beauty of the unique flowers growing on the sand-plains. He appealed to the Minister to ensure in the planning out of each new settlement in the sand-plain areas, that an area at least equal in size to that of a small farm should be reserved to preserve for posterity the remarkable flora. This would also assist in the perpetuation of the bird-life by providing secure breeding-places. An economic aspect of the matter was the necessity of securing a continuous growth of shrubs for top-feed during bad seasons. This top-feed—such as the curara—was not naturally regenerated where sheep were raised because the young succulent plants were being always eaten out. He suggested that a clause be inserted in pastoral leases providing for the setting aside, free from stock, of certain portions of a run for a certain period to allow of the young plants becoming established.

Mr. A. S. Le Souef seconded Mr. Ashby's vote of thanks, and it was carried.

ELECTION OF OFFICERS.

Letters were read from the General Secretary and Dr. J. A. Leach withdrawing the nomination of N. W. Caley for the office of General Secretary, the nomination having been made in error.

Mr. H. Wolstenholme (N.S.W.), wrote asking that his name be struck off the list of candidates for the Council, his name having been sent in without his knowledge. Mr. Ashby read a private letter from Mr. Wolstenholme, stating that his objection to standing for election was the mode or basis of election of councillors, as it allowed members of one State to nominate for the Council members of other States, and enabled them by electioneering tactics to put their nominees in. He would not be a candidate under these conditions. Mr. Ashby regretted Mr. Wolstenholme's withdrawal and said that the question at issue was whether the R.A.O.U. was to be regarded as a Commonwealth body or a union of State branches.

Messrs. L. Glauert and F. W. Coleman were appointed scrutineers, and the results of the ballot, as announced, are published on the inside back cover of *The Emu.*

REPORTS AND BALANCE SHEET.

Reports were received and adopted from the General Secretary, General Treasurer, and from the Secretaries of every State and the Dominion of New Zealand.

Commenting on a reference in the Western Australian report on Sparrows in the State, Mr. A. S. Le Souef said he saw some birds at Rawlinna on the Great Western Railway in Western Australia, which from their appearance and flight he took to be Sparrows.*

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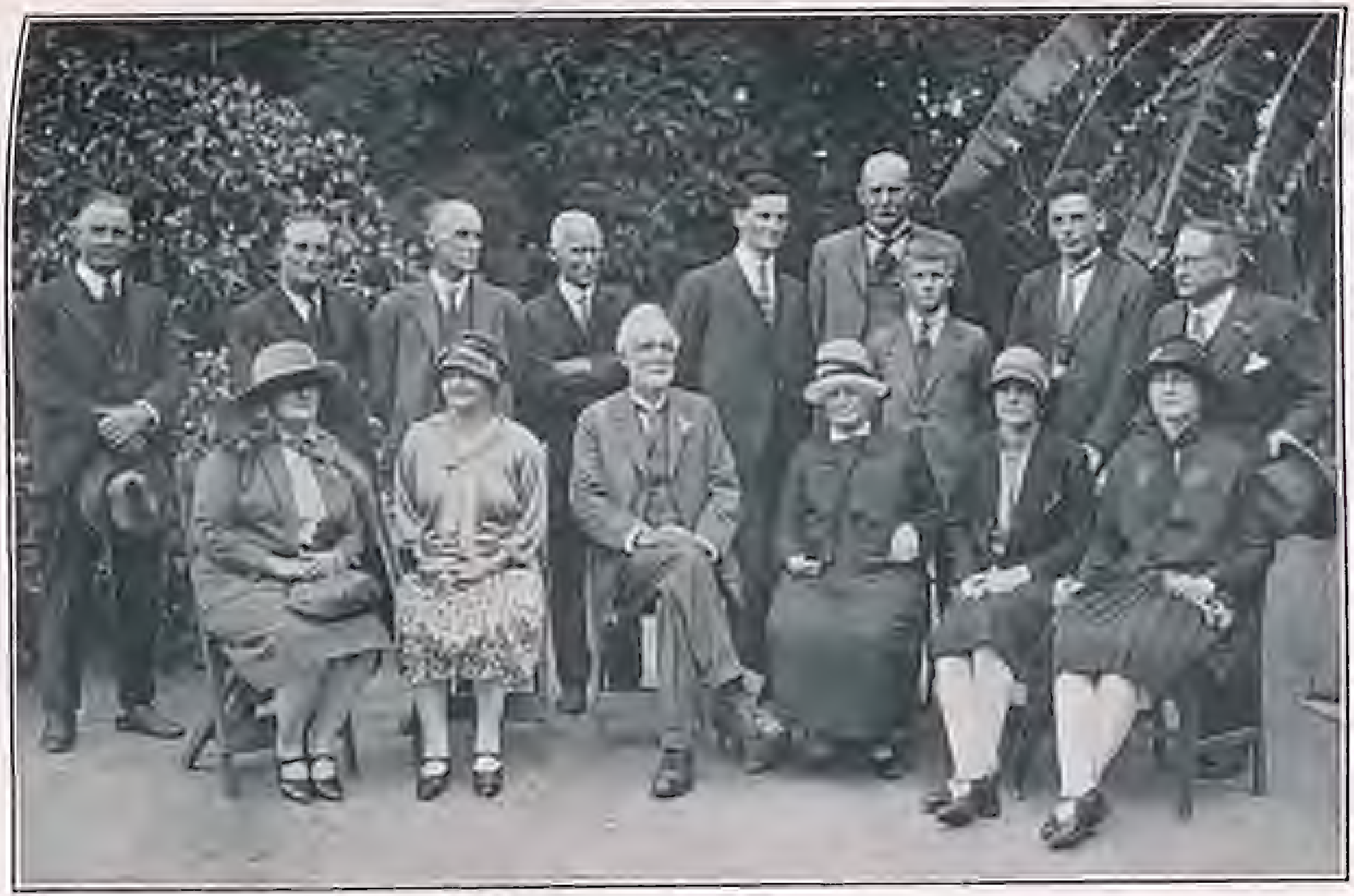
* This was subsequently reported to the Chief Inspector of Rabbits, W.A., who said he would institute inquiries into the matter at Rawlinna and other stations along the line.



R.A.O.U. PARTY AT THE ZOOLOGICAL GARDENS, SOUTH PERTH.

Standing (left to right): Messrs. H. A. Pilgrim (Member of the Acclimatisation Committee, W.A.), F. R. Bradshaw (W.A.), F. Lawson Whitlock (W.A.), Lieut.-Colonel B. T. Goadby (President Western Australian Naturalists' Club), Mr. D. L. Serventy (State Secretary, W.A.), Lieut.-Colonel E. A. Le Souef (W.A.), Messrs. H. A. Stevens (S.A.), J. Pollard (W.A.), and A. S. Le Souef (N.S.W.).

Sitting: Mrs. L. A. Stevens (S.A.), Miss A. F. Smith (V.), Mr. Edwin Ashby (Retiring President), Mrs. J. W. Israel (V.), Misses B. Hagenauer (V.) and M. Le Souef (W.A.).

Dealing with a reference in the South Australian report hinting at an amendment to the existing Act to allow landowners more control of fauna on their properties, Mr. Ashby said it was necessary on one station in S.A. to destroy annually thousands of Galahs and Bare-eyed Cockatoos to save the water. This was at present against the law, but the inordinate increase of the birds was due to the fact that the aboriginals did not now take out the nestlings from the trees in the wholesale manner of old. This was one of the ways in which the policy of protection was acting the fool, for though hosts of people in other parts of the world would have liked to have the birds, their export was forbidden.

Congress carried a resolution endorsing the efforts of Tasmanian naturalists in endeavouring to secure the reservation as sanctuaries of Lake Dulverton and other areas.

As convenor of the Committee on Reservations and Minimising Danger from Fires, Mr. Ashby presented a brief verbal report and regretted that no State other than Victoria had nominated members on the Committee.

Mr. A. S. Le Souef agreed to go into the question of bushfires with the Forests Department of N.S.W. and to report on the matter to the Council.

Mr. Ashby commented adversely on a reference in the report of the Secretary for New Zealand, stating that provisions in a new bird protection bill before the Dominion Parliament would make it illegal to take birds from sanctuaries for any purpose whatsoever. A sanctuary, Mr. Ashby said, should be for the purpose of preventing living things being taken out unnecessarily. A sanctuary in which no one should take out anything was really folly.*

Mr. A. S. Le Souef said he believed that on an island off the Queensland coast occurred a rat which was quite unknown, as well as two species of wallaroo and the Cassowary. It was a little-known island and we ought to have specimens of its distinctive fauna.

Mr. Serventy moved and Mr. Pollard seconded that Mr. Le Souef prepare a memorandum on the matter and submit it to the Council. This was agreed to.

THE EMU AND REPRINTS.

Discussing the publication of *The Emu,* Mr. Ashby said that a firm of printers in Adelaide was prepared to print the journal at the price at which it was now being turned out, and to issue 25 reprints of each paper free. He was strongly in favour of authors receiving free reprints.

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* This is a very debatable point. The retiring president's view is not necessarily that of the R.A.O.U.—Editor.

Mr. A. S. Le Souef moved that if it could possibly be done without meaning a great increase in the cost of publication, the Council should grant free reprints to authors. Mr. Serventy seconded the motion, which was supported by Mr. Whitlock and carried.

TRAINING YOUNG STUDENTS.

Mr. Ashby's presidential address, "The Educational Value of the Study of Ornithology," was delivered on the afternoon of the opening day of the congress, and was followed prior to any discussion by a paper by Mr. James Pollard entitled "Bird Protection."

Mr. Whitlock then moved that a small committee be appointed to go into the matters raised by the two speakers and thrash the thing out. He was distinctly in favour of encouraging those young collectors or lovers of birds who showed a real desire for knowledge, but not those who merely collected for the love of hunting—pea-rifle shooters and the like. He was in favour of granting permits to a reasonable number of the right sort of youths, especially in country districts, on the recommendation of an ornithologist, or even the local schoolmaster, if he promised to direct the boy or girl how to make the best use of the permits. Around big cities, of course, the permits should be strictly limited in numbers and the applicants should be of a suitable age. Anything collected would need to be preserved and used for reference or educational purposes. He himself had been collecting all his life, in spite of which he did not think he had done the birds any harm. He did not think we could ever produce too big an army of collectors, as the main interest of boys would continue to be cricket, football, etc.

Mr. Serventy seconded the motion, and the following were named as the committee: Messrs. F. L. Whitlock, James Pollard and D. L. Serventy.

Mr. Glauert said it was quite an easy matter to tell boys to collect, but they had to be shown how to collect properly. Though a boy might start to collect eggs, it did not follow that he would become a naturalist. The difficulty that we had was to encourage a love of nature amongst children and provide means to instil that love in the younger generation.

Mr. Bradshaw said that accuracy was a very important factor in ornithology and one could not get accuracy without collecting.

The motion was adopted and the committee were instructed to present their report to the Council and the next congress.

STATE GAME LAWS AND EXPORT OF FAUNA.

Mr. J. R. Kinghorn (N.S.W.), forwarded a short statement regarding the committee appointed at the last (Sydney), congress to investigate the various State game laws. He regretted that so far he had failed to reach any definite conclusion which would be fit to offer to congress. He had gone into the matter personally, but had been unable to discuss it with Mr. Rolin (the second N.S.W. representative). He had had a particularly busy year in various scientific activities outside the Museum. He was very keen to find a way by which the game laws of the various States might be brought closer together. He thought that the migratory birds should come under a Federal Act, as was the case in America, and that the game birds needed particular attention.

Mr. Kinghorn also reported on the export of Australian fauna. "As Secretary of the New South Wales Advisory Committee (not representative of the R.A.O.U.)," he stated, "I would like to say that attempts have been made to call a conference of representatives for each State so that uniformity of action might be drawn up. So far all representations made to the Minister of Trade and Customs have failed, and I think congress would do well to write to the Minister, asking that the matter of a conference be given consideration. Such a conference is, in my opinion, an absolute necessity, for the business which could be done under those conditions could not be done by correspondence, as suggested by the Minister."

In the ensuing discussion Lt.-Col. E. A. Le Souef complained that permission to export seemed to be largely a matter of favouritism. He had been offered £170 for a few Emus, but was not able to secure a permit to export, although the birds were being destroyed in the country. It was a very vital matter to him.

Mr. Glauert said that apparently it was an easier thing to obtain permits in the eastern States than in Western Australia.

It was decided that the General Secretary obtain from the Customs Department particulars of the policy which ruled in the various States regarding the export of fauna.

Mr. A. S. Le Souef moved and Mr. Pollard seconded that the committee on the matter of State game laws be reconstituted and to consist of the following: Dr. J. A. Leach (Vic.), Messrs. J. R. Kinghorn (N.S.W.), G. H. Barker (Q.), C. E. Lord (T.), D. L. Serventy (W.A.), and J. Sutton and J. N. McGilp (S.A.). This was carried and Mr. Sutton was appointed convenor of the committee, whose title was suggested to be "Commonwealth and State Game Regulations Committee."

Speaking in reference to the report of the State Secretary for Queensland, Mr. A. S. Le Souef said that there had just been unearthed a conspiracy in the Northern Territory regarding the export of birds to China. Apparently many persons had been "in the swim," and many hundreds of pounds must have been made by those engaged in it, with Darwin as the chief port.

Lt.-Col. Le Souef said he had heard of similar doings. Darwin being an out of the way place, no doubt things had been very haphazard. He had heard that birds were taken away in motor vehicles with a view of getting them out somewhere else. Mr. Pollard spoke similarly.

A telegram was read from Dr. J. A. Leach, asking congress to press for the protection of the Goura Pigeon. A motion to that effect was carried at the instance of Mr. A. S. Le Souef, who said that the plumes of this bird were sent out as ornaments from Dutch New Guinea.

SHOOTING OF ALBATROSSES.

Mr. J. Sutton forwarded a copy of a letter received by Mr. J. M. Bailey (Director of the Adelaide Botanic Gardens), from Mr. J. E. Young, of the Queensland Naturalists' Club. Mr. Young said he was a passenger on the French mail steamer the *Commissaire Ramel* and that on September 22, 1927, when the vessel was about 30 miles west of Albany and well within three miles of land the captain shot a large Albatross, and was shooting the birds on subsequent days. The passengers on the vessel believed he was doing it of a set purpose, because he once saw a youth who fell off a sailing ship being attacked and injured by the birds. It was suggested that if the matter were taken up by Australian ornithologists it would be best to appeal to the man's better nature, as to make threats which it might not be possible to enforce, might only make matters worse.

Commenting on the letter, Mr. Sutton stated that the captain's conduct seemed to be quite up to the mentality of our aboriginals. He said that upon representations being made to authorities in South Australia the law relating to the territorial limit had been advanced as hindering possible official action.

Mr. A. S. Le Souef said he had been a passenger on the vessel mentioned. He assured the congress that the captain was a most kindly man and was sure that the shooting only took place for the sake of having something to do. On one occasion porpoises were being fired at from the upper deck. He suggested that the Union write personally to the captain, appealing to him on humanitarian grounds to respect the wishes of Australian ornithologists.

Mr. Pollard seconded, and on the motion being carried, the mover and seconder were asked to draft the proposed letter.

DISTRIBUTION OF W.A. BIRDS.

A paper entitled "Some Peculiarities in the Distribution of Birds in W.A." was read by Mr. Whitlock. Congratulating the author, the Chairman (Dr. Chenery), said it was only Mr. Whitlock's very many opportunities for getting about that enabled him to a produce a paper like the one read. The study of the geographical distribution of birds was amongst the most difficult portions of our work, and it required years of careful observation and much travel to learn where one species ended and another began.

Mr. Glauert referred to the confusion resulting from the varied connotation of parts of the coast of Western Australia. The French navigators, as illustrated in the work of Lamarck, employed the term "west coast of New Holland" to the coastline from the south of Tasmania right around the south coast and as far as Shark's Bay—at least half the coast of Australia. At a later date similar confusion had arisen in connection with the term "north-west." The early English surveying vessels working on the north coast regarded Port Essington and Port Darwin as being on the north-west coast. Subsequently Australian authorities restricted the area so referred to, to northern Western Australia from Wyndham to the North-west Cape. It was the general practice in Western Australia, however, to apply the term only to that part of the coast between the 90-mile Beach and the Exmouth Gulf.

POLLINATION OF PLANTS.

Mr. O. H. Sargent read a paper on "Reactions Between Birds and Plants," dealing mainly with the factor of ornithophily in the pollination of flowers.

Mr. Ashby congratulated the author on contributing a paper on a subject which had been barely touched upon except on the outskirts.

Lt.-Col. Le Souef referring to the Emu and the spread of the seeds of the zamia palm (*Macrozamia fraseri*), said he had picked up more than sixty seeds at a spot by the Margaret River where the birds had been sitting.

Referring to birds and the spreading of the mistletoe (*Loranthus*), Mr. Sargent said there were thirty or forty species of *Loranthus* in Australia and the species with which he was familiar was *L. preissi*. The seeds of this species certainly would germinate when taken direct from the parent plant. He had seen them germinate on a wire fence after the berries had been squeezed on the wire. By splitting the berry the seeds would also germinate on the parent plant itself. Amongst birds he classed the Silvereye as being an important agent in affecting the distribution of the mistletoe.

OTHER PAPERS.

Two papers were read on behalf of Dr. J. A. Leach, a review of Gregory Mathews's *Birds of Australia,* and another on the *Systema Avium Australasianarum.* In connection with the former paper, congress carried a motion that the nature of the compromise with Mr. Mathews on the printing of subgeneric names in the Checklist, 2nd edition, be more explicitly stated.

Mr. Ashby read a paper on "Bird Rookeries in the Bass Strait Islands," and "Observations Made at Sea of Migration of Birds Across Bass Strait."

During the Camp-out sessions a paper by Mr. R. Hall on "The Relationship of the Western Australian Avifauna" was discussed. Mr. F. R. Bradshaw lectured on "The Birds of the Stirling Ranges." Mr. Ashby gave an account of half an hour's observation of the Lyre-Bird. Mr. A. S. Le Souef gave an address on "Marsupial Origin."

NEXT CONGRESS.

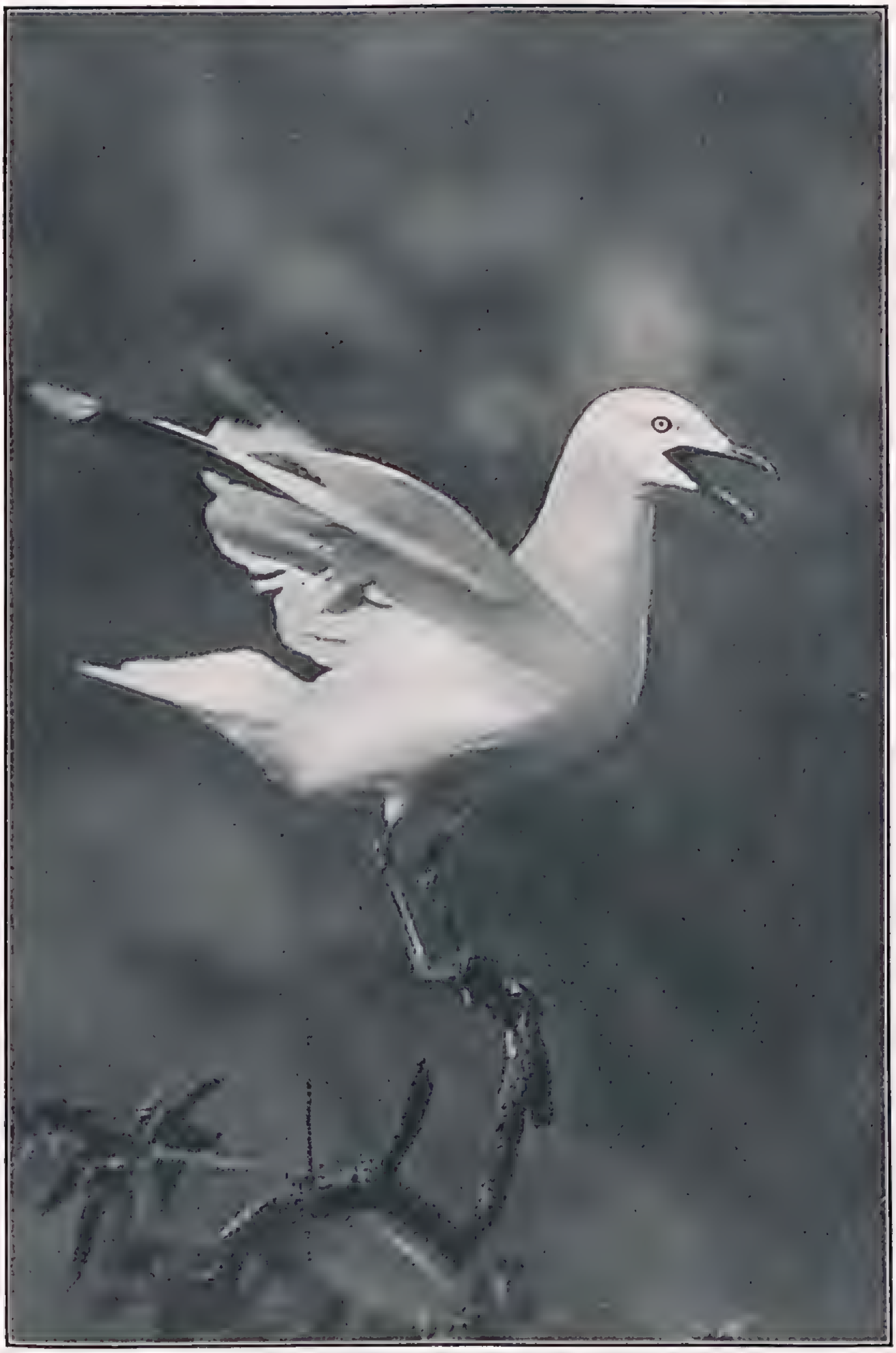
An invitation was received from New Zealand to hold the next congress in the Dominion. Congress thought that adequate preparations could not be completed in time to hold a successful congress in New Zealand in 1928, but recommended that such be held in 1929, the location of the 1928 congress being referred to the Council. A motion to this effect was moved by Mr. Pollard, seconded by Dr. Chenery, and carried.

GOVERNMENT COURTESY.

The Premier of Western Australia (Mr. P. Collier, M.L.A.), granted free first-class train passages to all the members attending the Nornalup camp-out, as well as providing the same facility to Mr. Ashby and Dr. Chenery on their trips to Geraldton and beyond. At the instigation of the Government the Midland Railway Company had also granted free passages to these two gentlemen. Dr. Chenery moved and Mr. A. S. Le Souef seconded, "That the best thanks of the Union be extended to the Premier for the great courtesy shown to members." This was carried unanimously.

CONGRESS LECTURES.

During the congress Mr. Ashby addressed the students of the premier State secondary school, the Perth Modern School, and also the trainee teachers at the Training College, Claremont, where he was well received by Professor Cameron and the students, who succeeded in inducing him to pay a second visit to the college after the camp-out.



STRIKING STUDY OF A SILVER GULL.

Photo. by O. Webb.

NATIONAL MUSEUM OF MELBOURNE

The second annual natural exhibition of the Western Australian Naturalists' Club was held on October 19, and it was officially opened by Mr. Ashby, who made a fervent plea for rural reservations along the lines indicated elsewhere in this report.

At 4 p.m. on Wednesday, October 19, the conference was adjourned to the camp.

D. L. Serventy,
Hon. State Secretary, W.A.

OUTING SESSIONS.

Through the courtesy of Mr. F. S. Thompson, of "Tinglewood," Nornalup, the deliberations of congress during the camp-out were held during the evenings in the dining-room of his house. Each evening was given up to business matters with interludes in the way of addresses and lectures and discussions on the day's events.

BRANCHES, CLUBS AND THE UNION.

The first outing session of congress was held on October 24, when matters in connection with the formation of State branches of the Union were dealt with arising out of a resolution of last year's congress: "That it be an instruction to the incoming Council to take steps to establish local branches." The outcome of a long discussion was the following resolutions:

"That we recommend that the affiliation of local bird clubs or societies be founded on the three points following: (1) The acceptance of the stated objects of the R.A.O.U. (2) The supplying of a short annual report to the R.A.O.U. (3) Members of the R.A.O.U. to be allowed to join the respective clubs by paying half the subscription to the club or society that is paid by non-R.A.O.U. members.

"That a resume of the whole discussion be prepared and submitted for confirmation at next congress; and that it be also forwarded to *The Emu* with a request for publication."

Members discussing this matter regarded it as one of extreme gravity likely to affect the welfare of the R.A.O.U. A letter was read from Mr. A. G. Campbell dated August 20, drawing attention to the minute of last year's congress as noted above. "The Bird Observers' Club was formed in Melbourne," he wrote, "and asked to be appointed under Article 26 (the machinery clause or rule), but so far, either from apathy or stone-wall, this has not been done. This club must have twenty R.A.O.U. members and as many more who are not yet so. It has adopted the Union aims and objects *in toto,* and seeks to be a local unit or appointed committee in Melbourne. If we had such units in all larger centres to give the personal touch, it must be for the benefit of the Union as a whole."

To this Mr. Ashby had replied, stating as his opinion: "We should call no local gatherings of members 'branches,' but, as you suggest, call them 'Bird Clubs,' or any other name that may be desired. In South Australia we call ourselves the 'South Australian Ornithological Association,' and as an organisation antedate the R.A.O.U., but we should be affiliated." He suggested that the terms of the affiliation should be as expressed in the three points noted in the resolution carried this year.

Mr. A. G. Campbell wrote on September 16, replying that he agreed with Mr. Ashby's 1, 2, and 3 points, and stressing again that the Bird Observers' Club of Melbourne had not been dealt with according to the minute of last congress. He also drew attention to his paper in *The Emu,* XXVI, p. 193, Jan., 1927.

Speaking, Mr. Ashby said he regarded the purpose of "Union" as the "affiliation of all bird societies." He instanced that the British Ornithologists' Union had no branches, but had a British Ornithologists' Club. These met together at periods; the Club had its own publication, the Union another —and more scientific in its scope. The Club had no legislative powers. He favoured Australian-wide nominations as against State nominations, as it would be awkward if there were various "branches" in different parts of the State. The Union would be weakened by branch legislative power. He had no use for the word "branch" at all. "We are a union of Australian and New Zealand ornithologists," he said, "and should make use of the best material to be found in Australia and New Zealand, and not consider in nominating a council member where that member lives."

Expressing N.S.W. opinion, Mr. A. S. Le Souef gave the opposite view, stating that to keep the Union together it might be necessary for the States to nominate their members for Council. This would ease the position as it stood at present, there being a wide division of opinion on the question. In any case, each State should have its own representative appointed.

Lt.-Col. Le Souef thought that to form branches would make for the breaking up of the Union. Local jealousies were even now approaching a stage when they would split an organization which functions at present as one of the most democratic. The formation of branches with legislative powers would be a retrograde step from unification.

Mr. A. S. Le Souef concurred with this opinion, and after further general discussion all were agreed that the question was one of the most serious with which the Union had to deal. The resolutions as framed aimed at drawing members closer to consider the matter, and it was agreed that it was a step in the right direction. It was accordingly moved by Lt.-Col. Le Souef, seconded by Mr. F. R. Bradshaw (W.A.), and carried unanimously.

HEADQUARTERS.

The question of the suitability of the Union's headquarters being transferred from Melbourne was briefly considered. Conference unanimously agreed that it should remain there in accordance with Mr. H. L. White's bequest to preserve it.

INTRODUCING THE LYRE-BIRD.

An address on the habits of the Lyre-Bird was given by Mr. Ashby on the evening of October 26. Listening to a Lyre-Bird for half an hour during one wet day he heard it imitate to perfection the notes and whistles of more than a dozen birds. Its best piece was mimicking the Butcher-Bird, coming back to it most frequently, the liquid melody sounding perfect, with perhaps more volume. Other calls readily recognized included the Grey Magpie, Red Wattle-Bird, King-Parrot, Golden-breasted Whistler, Whip-Bird and several of the smaller birds. Mr. Ashby shot this Lyre-Bird, and he claimed that as hitherto there had not been any actual record of notes attached to Lyre-Bird skins in other collections, the history attached to this skin was unique. The speaker also gave accounts of hearing Lyre-Birds imitating other sounds—the chop of an axe and the whirr of a saw, of wedges clanging together, and of a dingo pushing its way through scrub with puppies whimpering after it.

Mr. A. S. Le Souef added to the interest by an account of finding two male Lyre-Birds courting a hen—one mimicking all the birds it could and the other relying solely on the imitation of artificial sounds, such as the tapping of a file on a wire fence.

Lt.-Col. Le Souef remembered "listening entranced to a Lyre-Bird which chopped a tree down perfectly." He drew laughter from his audience when he said he had once heard a Lyre-Bird imitate a pig being killed—"an improvement on the original."

The outcome of the discussion, during which it was stated that the karri country of south-western Australia was suited to the Lyre-Bird, was a motion recommending the Acclimatisation Committee to introduce the Lyre-Bird into the Nornalup Country of W.A.*

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* The recommendation was duly considered by the Acclimatisation Committee, which expressed its hearty accord with it and authorized the Secretary (Lt.-Col. Le Souef), to spend up to £25 in this direction.

SANCTUARIES.

All who participated in the camp-out agreed that the southwest was one of Nature's grandest gardens, and as an outcome of many discussions on the flowers, birds and mammals of the Nornalup area, it was resolved that congress should suggest to the W.A. Naturalists' Club the desirability of setting apart flora and fauna reserves in the vicinity of all townships or centres of population, so that future generations may have the opportunity of studying the unique flora and fauna of the State, and that the Club appoint a committee to deal with the matter.

CONCLUSION.

Congress closed on Saturday evening, October 29.

Mr. Ashby and Mr. A. S. Le Souef spoke appreciatively to a vote of thanks to Mr. and Mrs. F. S. Thompson, and their son, of Tinglewood, who did everything they could to make the camp-out a success, devoting much of their time to guiding the various parties about the locality.

Lt.-Col. Le Souef moved a vote of thanks to the retiring president, whom he characterized, to the approval of all present, as having been the "life of the party."

James Pollard,
Joint Secretary to Congress, 1927.

Congress Reports.

REPORT OF THE HON. GENERAL SECRETARY.

During the twelve months 41 new members have been enrolled, while deaths and resignations have been responsible for the removal of 34 names. The total membership is now 526. made up as follows: Victoria, 167; New South Wales, 154; Queensland, 60; South Australia, 31; Western Australia, 19; Tasmania, 20; New Zealand, 21; British, 22; Foreign, 32; exchanges, 20. The total number of copies of *The Emu* distributed each quarter is 546. Future requirements are provided for by the printing of 625 copies.

It is with deep regret that I have to state that some of our original and esteemed members have passed away since the last Annual Meeting. By the death of Mr. H. L. White the Union was deprived of its most noteworthy benefactor, who was responsible for placing the Union in the foremost position in which it stands to-day. Mr. White was an original member and for over twenty years supported the Union most liberally in funds for the provision of coloured plates in *The Emu*. Further, he donated the sum of £1,000 for suitable premises as headquarters of the union. This gift was followed by the valuable ornithological works of Gould and Mathews, which Mr. White generously presented to the Union. Another original member was Sir Charles S. Ryan, who died while returning from an extended visit to Europe. He took a prominent part in the affairs of the Union in its early years and in 1906 was elected President. Other members whose deaths I regret to record are: Messrs. J. Boyle, E. R. de Little, S. Basil Edwards, R. S. Archer, Mr. R. J. Bull, Hon. A. H. Whittingham, and Dr. E. W. Ferguson.

Through the untiring efforts of Mr. N. J. Favaloro, the Council succeeded in procuring new premises in Latrobe Street. The room is large enough for the holding of small conversaziones and already several meetings have been held. The cabinets and book-cases are well arranged, and members will now have the opportunity of using the material contained in these cases. Mr. Ian D. Sargood, prior to his departure for England, presented to the Council a handsome cabinet containing a valuable collection of Australian birds' eggs. The Council is grateful to Mr. Sargood for this useful addition to the collections already in the Union.

During May a small party of bird-lovers, mostly members of the R.A.O.U., decided to resuscitate the Bird Observers' Club, which was disbanded in 1916. Through the generosity of Mr. C. W. Wilson a room was made available in Scott's Hotel, and meetings have been held there once a month. Apart from bird-observing, this Club devotes much attention to the protection of native species and has already been well represented on several deputations towards that end.

The Council has been active on matters relating to bird protection. Through representations made to the Tasmanian Government the Cape Barren Goose has been protected in that State for the whole of the year. Recommendations have been made to the Fisheries and Game Department (Vic.), to have certain localities declared sanctuaries, and at present attention is focussed on the Mutton-Bird rookery at Cape Wollamai. Near Melbourne the Purple Cross Society has recently had over 80 acres of their land gazetted as a sanctuary for native birds. The action of this Society is to be appreciated, as very little scrub land is now left so close to the city. Representatives from various natural history societies and gun clubs recently interviewed the Chief Secretary for the purpose of urging the establishment of an Advisory Board whose duty it will be to consider matters relating to protection. The Chief Secretary was sympathetic and promised to give the matter consideration.

The Emu is still maintaining its high place amongst the bird journals of the world. This is principally due to the exertions of the successive editors, who are chiefly responsible for its high standard. Owing to the cost of printing the Council found it necessary to instruct the editor to discontinue giving reprints.

At the end of each financial year it is the painful duty of the Hon. Treasurer and Secretary to make repeated requests to a small number of members for their overdue subscriptions. It is most desirable to impress upon members wishing to discontinue their membership that the Secretary should be notified prior to the beginning of each financial year and thus relieve these officers of tedious duties.

D. Dickison,
Hon. General Secretary.

VICTORIA'S REPORT.

It is with no small degree of pride and satisfaction that Victorian members of the R.A.O.U. review the events of the last twelve months.

Acting upon the suggestions made at last congress it was decided by leading men that steps should be taken to further the interests of the Union and make a determined effort to bring the general public into closer touch with ornithological affairs. Subsequently, the Bird Observers' Club was reorganised; seventy members were soon enrolled, and the Club affiliated with the R.A.O.U. From time to time combined meetings have been held and various matters of importance discussed. Keener interest than ever has been shown by the steadily increasing attendances at monthly conversaziones and the introduction of new members into the Union. Enjoyable, instructive and interesting lectures and papers have been delivered by Drs. Brooke Nicholls, J. A. Leach and McArthur, also Messrs. Mattingley, Ross, Campbell, Favaloro, and Rev. Lang, whilst Mr. F. E. Howe and other enthusiatic members have contributed substantially to the ensuing discussions by making available their valuable field-notes and observations.

Members deeply regret the death of Mr. H. L. White, of Belltrees, Scone, N.S.W., one of our most esteemed members and most liberal benefactors. Metropolitan members are most fortunate in having at their disposal not only the greatest oological collection in Australasia, but the greatest of its kind in the world. More remarkable still is the colossal "Data Book" accompanying Mr. White's collection. Within the covers of this work of art and endurance lie untold secrets wrenched from the very heart of Australian wilds—from the cold and icy south, picturesque tropic isles, the parched and lonesome desert, from the highlands in the east and the unfrequented west. Mr. White and his energetic band have handed on to posterity and the nation a priceless gift that will be more and more appreciated as the years go by. Not only have they brought into the light of science new nests and eggs, and preserved them for all time, but they have placed on record observations of rare and vanishing forms which may never again be so thoroughly sought after by ornithologists. It is quite possible that some of the species will before long become extinct.

We have been fortunate in having with us Mr. S. W. Jackson, whose knowledge of bird-lore is remarkable. Although busily engaged in rearranging and preparing the H. L. White collection, Mr. Jackson devoted an evening to the Union and members had a most enjoyable and instructive lecture from one who knew his subject thoroughly.

Mr. R. T. Littlejohns is to be congratulated on having completed his filming of the "Lyre-Bird at Home." About 900 feet of this film was screened before members of the R.A.O.U. prior to its being sent to London. This is an accomplishment which can only be thoroughly appreciated by those who have had the privilege and opportunity of observing the bird in its natural haunts, and who know the difficulties that have to be overcome before such an undertaking could be made at all possible. We feel certain that all members of the R.A.O.U. will join with us in wishing Mr. Littlejohns every success with his production, which is a glowing tribute to his persistency and endurance.

NORMAN J. FAVALORO,
Hon. State Secretary.

NEW SOUTH WALES'S REPORT.

This year has been a satisfactory one. Nine well-attended meetings were held, and the lecturettes and discussions were both enjoyable and informative. The Bird Cabin in National Park has been well patronized by members, and much useful information gained of the bird life of that interesting locality.

A trip to Lord Howe Island organized by Mr. E. F. Pollock was well attended, and judging by the splendid collection of bird-photographs taken by members of the party and exhibited at our meetings, proved both enjoyable and fruitful. Messrs. A. Musgrave and P. A. Gilbert visited the Macpherson Range of southern Queensland, and gained much useful knowledge and excellent photographs of that wonderful national reserve.

Members of the Section feel proud of the following appointments: Mr. A. F. Basset Hull to the Taronga Zoological Park Trust, Mr. A. H. Chisholm to the National Park Trust, and Mr. H. Wolstenholme to the Kuring-gai Chase Trust. These gentlemen, we feel sure, will, with their enthusiasm and knowledge, prove useful trustees.

A summary of the lecturettes given during the year is as follows:

August 20.—Mr. E. F. Pollock, a lecture illustrated profusely with lantern slides made from photographs taken by himself and others, entitled: "With the Sea-birds and Turtles of the Capricorn Island."

September 24.—Mr. A. Musgrave exhibited some fine lantern slides of scenes taken on Duggan's Creek, an arm of the Chichester River, and Mr. J. R. Kinghorn showed some beautiful coloured slides of bird-subjects taken by Messrs. D. W. Gaukrodger, C. H. Jerrard, J. S. P. Ramsay, A. E. Keene, and himself.

October's meeting took the form of a "Bird Night," when visiting ornithologists from other States were entertained by the members.

November 19.—Mr. A. J. Nicholson delivered a most instructive lecture entitled "Insect Photography," illustrated with numbers of remarkable lantern slides made from his own photographs. Incidental to Mr. Nicholson's lecture were some clever attachments to the camera he uses, invented by him to overcome some of the difficulties met with in Nature photography, especially in connection with accuracy in focussing.

December 17.—Exhibition of lantern slides by Mr. Norman Chaffer of some pretty pictures taken during the R.A.O. Union's Camp-out, held on the Upper William's River.

February 18.—A general discussion on bird protection.

March 18.—Mr. A. S. Le Souef gave an interesting address on the bird life observed during his trip abroad.

April 22.—Mr. E. F. Pollock exhibited as lantern slides a very fine collection of bird photographs. The studies were mostly taken by him during trips to the Capricorn Group and Lord Howe Island. Other subjects were taken by Dr. W. MacGillivray and Messrs. Otho Webb and Bell.

May 20.—Mr. A. Musgrave gave an interesting account of his trip to the Macpherson Range of southern Queensland during the latter part of 1926. He illustrated his remarks with many beautiful lantern slides, chiefly scenic views of many beauty spots of that magnificent national reserve.

June 17.—Mr. N. W. Cayley led a discussion on waders, and exhibited lantern slides from photographs taken by Messrs. Littlejohns, Chaffer, Burrell, and Webb. Mr. J. R. Kinghorn exhibited some interesting specimens from the Australian Museum collections.

The following office-bearers were elected for the year 1927-8:

Chairman: Mr. Clifford Coles.
Vice-Chairman: Mr. A. S. Le Souef.
Hon. Secretary: Mr. N. W. Cayley.
Committee: Messrs. A. H. Chisholm, M. S. R. Sharland, P. A. Gilbert and J. R. Kinghorn.

N. W. Cayley,
Hon. State Secretary.

QUEENSLAND'S REPORT.

Very little of a pleasing nature suggests itself for mention in this year's report. Our much-vaunted and apparently efficient *Birds and Animal Act* has proved, in the hands of a soulless Government, to be not worth the paper it is printed on. Our Emu is still the sport of the Prickly Pear Commission throughout the greater part of the State, and over 300,000 of our native bears "went west" lately to provide some more cash (per medium of a royalty), for an unprincipled Cabinet to play with.

One of the excuses for opening the season for native bears was that the money so gained would be used solely in administering the Act. No figures are yet available as to the amount of blood-money so received, but as the appointment of five rangers was the only expense incurred during the year, it is obvious that there will be a wide margin absorbed by consolidated revenue. One striking feature of the Government betrayal of the bear was the spontaneous outburst of indignation throughout the whole State; it was estimated that at least 90% of Queenslanders heard with regret and condemnation the decision to open the season for koalas. We are hoping, and have good reason to believe, that as a result of the fearful wastage a permanent close season for both bears and Emus will be enacted before the end of the year, but this for the bear may be too late.

The good work started last year by Mrs. W. M. Mayo, R.A.O.U., who induced the Education Department to arrange a monthly field afternoon for student teachers, on which occasions she and other local members of the Union gave honorary guidance, was so much approved that a weekly indoor lesson was included in the Department's programme, to which the same honorary service by Mrs. Mayo and her helpers has been given.

The Central Queensland Bird Protection Association, whose members, it will be recalled, so ably cared for us on the occasion of the Rockhampton meeting, continue to do good service, and all its members are gazetted honorary rangers by the Government. Time after time they apprehend illegal shooters, but the penalties inflicted are farcical and inadequate

The terrible drought conditions still resting over a great part of our State, and which have only been slightly relieved by recent rains, have meant a steady but sure decrease in our bird-life, and it will be years before birds are even seen in the west central part of the State again.

The thanks of the Union are due to the Customs Department for its increasing and successful vigilance in the matter of bird smuggling in foreign vessels, and it is safe to assume that little gets away on these ships, at any rate at this port.

Geo. H. Barker,
Hon. State Secretary.

SOUTH AUSTRALIA'S REPORT.

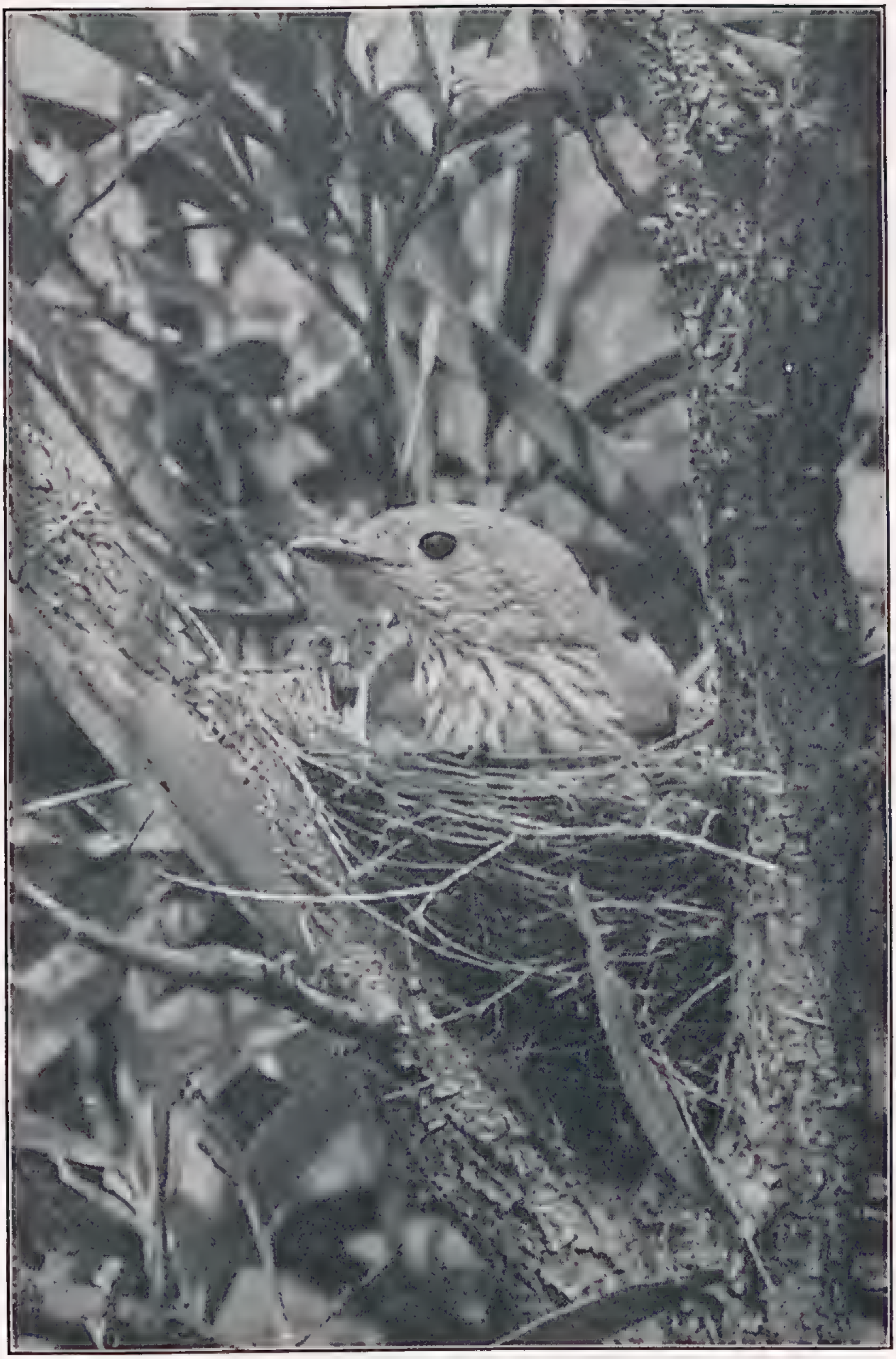
In submitting this report it may be necessary to point out that in this State there is not a "branch" of the Union. Many of our members consider that the term "branch" is inappropriate to an Australian Union, and that local members might better form themselves into Bird Clubs or Societies, which we think should be recognized as affiliated with the Royal Australasian Ornithologists' Union.

Most members of the Union residing here are also members of the South Australian Ornithological Association, which body holds instructive meetings monthly and has throughout the year been active in matters dealing with bird-protection. This Association publishes its Proceedings and many excellent scientific papers in its magazine, the *South Australian Ornithologist.*

It is with pleasure we congratulate South Australia in having as Minister of Industry the Hon. J. Cowan, under whose control are matters connected with fauna protection, etc. Already the Minister has given evidence that he will give much assistance in protecting bird-life generally and game birds particularly. He has notified that the next close season for Ducks will not open until much later than the end of December. All bird-lovers are agreed that the present date of opening the season is too early, as at the end of December many brooding birds and young Ducks are about; and we are looking forward with pleasure to the alteration to a later date.

Though not an ornithological matter, mention might be made of the opening of the opossum season after a long term of close seasons. It was generally considered that as the result of such protection these animals had increased so that they had become a pest, and the Minister of Industry decided to open the season for three months. Thousands of skins were sold at record prices. After the season had been open for two months the Minister decided that sufficient animals had been taken to bring the number down to normal, and he promptly issued a notice closing the season. This action goes to show that we have a Minister in control of our fauna who will give reasonable consideration to these matters. Further, he has said that important alterations to the *Birds and Animals Protection Act* will be necessary in the future; these alterations, we believe, will seek to give landowners more control of fauna on their properties.

A number of requests for export of native birds and animals has been dealt with by the Advisory Committee, and close watch is being kept to prevent the export of rare and economically valuable birds and animals; but at the same time it seems unreasonable to refuse to allow exportation of those forms which have in places become too numerous or even pests. Under proper regulation there seems no valid reason why we should withhold such from those in other countries who value them.



FEMALE RUFOUS WHISTLER ON NEST.

Photo. by O. Webb.

Several of our members have been active in giving bird-lectures at public institutions, literary and kindred societies in the city and suburbs, and to agricultural bureaux and high schools in the country. One of our members continues active in instilling into the minds of boy scouts the need of protecting our fauna. We believe that as a result of this collective work there is a healthy growing public interest in our native birds.

The importance of finding some effective means of educating young workers to take the places of the older generation is exercising the minds of our South Australian members.

J. Neil McGilp,
Hon. State Secretary.

WESTERN AUSTRALIA'S REPORT.

Local members received with interest the announcement made during the last conference that the interstate conference this year should be held in Perth. For the first time in the history of the Union in this State meetings of local members have been held, in this case to make preparations for the conference. It is intended to continue the meetings on future occasions. As a result of this conference it is hoped that a much-needed stimulus will be given to the work of the Union in Western Australia. That there has been some re-awakening of interest is indicated by an increase of membership during the past year, and this, though slight, is encouraging, for the membership has remained stationary for many years.

There has been little ornithological research on any scale attempted locally during the past twelve months, but mention must be made of a comprehensive paper on the nidification of the Mallee Fowl (*Leipoa ocellata*), by Mr. Bruce W. Leake, R.A.O.U., published in the *Western Mail* of May 4, 1927, a paper compiled from facts elicited during the breeding of the birds in captivity.

Little outcry has been raised against any bird charged with being a pest, and no complaints have been officially made to the Fisheries and Game Department regarding the apple-destroying habits of the White-tailed Black Cockatoo (*Calyptorhynchus baudini*), which was mentioned in last year's report. An endeavour was recently made to have "Cockatoos and Galahs" declared vermin in the Perenjori-Mullewa district, but was not approved. Mr. F. Aldrich, the Chief Inspector of Fisheries and Game, is of the opinion that the public conscience in the matter of protecting the native fauna has noticeably improved. This is attributed partly to the continuous and sympathetic efforts during recent years of Mr. C. G. Hamilton, of the nature study branch of the Education Department. That propaganda work of this kind is of very real importance becomes evident when it is realized that if actively coercive methods had to be depended upon for the protection of threatened fauna, little could be accomplished with the small number of officials available. The Chief Inspector of Fisheries has a staff of ten men distributed all over the State.

In January, 1927, a mild stir was raised amongst that section of the community which is apprehensive of the entry of the Sparrow into Western Australia. It appears that whilst the Cunard liner *Carinthia* was in Fremantle with tourists from America, a passenger (with the best motives) released a pair of Sparrows which had sought refuge on the vessel whilst it was in the eastern States. In the hue and cry which was raised one of the birds was shot, but the other eluded capture. In the hunt for it several innocent native birds fell victims to enthusiastic but ill-informed patriots, the Museum once receiving a Rufous Song-Lark as being the fugitive Sparrow.

The Chief Inspector of Rabbits of the Department of Agriculture (Mr. C. J. Craig), who administers the vermin branch of the Department, has kindly supplied me with the following notes of the previous occurrences of the Sparrow in this State: "In 1898 two Sparrows were shot by Mr. R. Helms in the Government Gardens (situated next to the Department of Agriculture). At intervals odd birds and nests have been found in trucks on the Transcontinental line and about five years ago one of my officers was sent to the South Australian border and cleaned up a colony of about ten birds which he found on this side of the border."

D. L. Serventy,
Hon. State Secretary.

TASMANIA'S REPORT.

The work carried out by members of the Union and interested societies in Tasmania in regard to the conservation of the animals and birds of the State is becoming more widely recognized. Two outstanding instances may be quoted in support of this. The Swansea Municipal Council has asked for assistance from scientific bodies concerning the better protection of the Black Swan. Moulting Bay in the vicinity of Swansea is a favourite resort of Swans and similar aquatic birds. For the past two or three seasons a certain amount of police protection has been afforded during the breeding-season, but the Council are not satisfied that such protection is sufficient, and in addition it is said that during the shooting season excessive shooting takes place. The matter is under consideration, and although the local Council has not obtained very encouraging support in certain directions, their efforts will be watched with interest by scientific and other societies interested in the question. The second case is also that of a municipal council taking steps for the better protection of bird-life. The Oatlands Municipal Council recently approached the Attorney-General by deputation with the request that Lake Dulverton, a sheet of water in the vicinity of the township of Oatlands, be declared a sanctuary. Unfortunately, the Attorney-General refused to grant the request. The matter has been taken up by the Field Naturalists' Club and other bodies, and more will probably be heard of the matter in view of the fact that the Attorney-General is not favourable to the granting of further sanctuaries even when requested by a local municipal council to proclaim an area. The Tasmanian Field Naturalists' Club is making enquiries in regard to asking certain of the large landholders to set aside sanctuaries; but in view of the ruling of the Attorney-General concerning the Lake Dulverton request, the Club is anxious to obtain as much support as possible before proceeding further with such a scheme, and any assistance that the R.A.O.U. can give in this direction will be welcomed.

In regard to game acts generally, the Government has stated its intention of amending the present Act during the coming session, in order to place the control of the game laws under a board or commission. Should such bill be placed before Parliament for consideration, every attention will need to be given to the personnel of the proposed commission.

Tasmanian members are busy preparing for the Australasian Association for the Advancement of Science meeting, which is to be held in Hobart during the week commencing January 16, 1928. Members of the R.A.O.U. who may attend this meeting will be welcomed by their Tasmanian *confrères,* who will endeavour to see that their stay in Tasmania will be both enjoyable and profitable.

CLIVE E. LORD,
Hon. State Secretary.

NEW ZEALAND'S REPORT.

During the present session of Parliament a bill was introduced by Sir Thomas Mackenzie with the object of transferring to the Legislature the power which at present the Minister of Internal Affairs wields of removing birds from the protected list. Should this bill become law it would ensure that a species of bird or other animal once on the protected list cannot be removed except by act of Parliament. This is a further step in securing the protection of the native birds. A further provision of the new act is that permits cannot be given to take birds from sanctuaries for any purpose whatsoever.

BALANCE SHEET.

RECEIPTS.

				£	s.	d.
Subscriptions—						
Fully paid up (2)	£15	15	0			
Arrears	140	14	0			
Current	421	10	0			
Prepaid	40	6	0			
				618	5	0
Sales *Emu* £40/18/11, Covers £2/8/2, Index £1/10/-				44	17	1
Sales Check-Lists £142/18/-, Donation Map £5				147	18	0
Advertisements £2/2/-, Interest £15/6/8, Exchange £7/6/-, Postage £1/18/-				26	12	8
Donations, Illustrations £31/8/-, Lyre-Bird £50				81	8	0
Trust Fund Interest				60	0	0
Total Receipts				£979	0	9
Cr. Bal. General Fund, 1/7/26	£4	14	4			
Cr. Bal. Savings Bank, 1/7/26	250	0	0			
				254	14	4
				£1,233	15	1

ASSETS.

				£	s.	d.
Savings Bank Cr. Balance, 1/7/27				140	0	0
National Bank Cr. Bal.				26	15	6
Subscriptions, Arrears	£43	9	0			
Less prepaid	40	6	0			
				3	3	0
Library				450	0	0
Furniture and Specimens				350	0	0
Blocks				10	0	0
Emus				50	0	0
Check-Lists				280	0	0
Tent, Material, Punch and Register				3	17	6
Reserve Fund, Commonwealth 6% Stock, 1930				100	0	0
Trust				1,000	0	0
				£2,413	16	0

Z. Gray, L.C.A., *Hon. Treasurer.*

Melbourne, 1/7/1927.

Year Ended June 30, 1927.

EXPENDITURE.

			£	s.	d.
Emu, Vol. 26—					
Printing		£359 18 5			
Reprints		72 9 7			
Illustrations		45 6 0			
Postage		13 1 11			
Envelopes		7 10 0			
Typing £2, Postage 10/4, Freight £1/19/-		4 9 4			
			502	15	3
Check-Lists			421	11	10
Annual Congress, 1926			20	15	11
Postage, £18/6/5, Stationery £6, Exchange £6/7/5, Typing £2/18/-, Covers £1/15/-, Commission £2/12/5, Cartage £1/7/6, Carriage 11/8, Wool 4/-, Bank Fees 10/-, Cheques 2/6			40	14	11
Lyre-Bird A/c			10	0	0
Trust A/c: Rent £52, Light 2/9, Lock 4/6, Insurance £2/8/4, N.Z. Birds £1/1/6			55	17	1
Total expenditure			£1,051	15	0
Trust A/c Dr. Bal., 1/7/1926			15	4	7
Savings Bank Cr. Bal., 30/6/1927			140	0	0
Lyre-Bird A/c Cr., 30/6/1927		£40 0 0			
Less General A/c Dr.	2 2 10				
Less Trust A/c Dr.	11 1 8				
		13 4 6			
National Bank Cr. Balance, 30/6/1927			26	15	6
			£1,233	15	1

LIABILITIES.

Nil

Audited and Certified Correct.

James Barr, F.C.P.A.,
S. A. Lawrence,
Hon. Auditors.

30/9/1927.

The Annual Meeting of the New Zealand Bird Protection Society took place in Wellington on August 1, 1927. There was a large gathering of members and the public, including school children. The President (Sir Thomas Mackenzie), occupied the chair. After the formal business of electing the officers, the evening was devoted to the showing of films and lantern slides of birds and their haunts. The scope of activities of the Bird Protection Society was widened by the inclusion of the native flora in its sphere of protection.

During the early part of the year a visit of inspection to the southern islands of New Zealand by the Government steamer *Tutanekai* gave the opportunity to study bird-life on these outposts of the Dominion. Advantage was taken of this by Messrs. W. H. Guthrie-Smith, W. R. B. Oliver, and others interested in nature, including Dr. G. Einar du Rietz, of Upsala, and Mr. G. M. Turner, of Stewart Island. All the islands were visited and some thirty-five species of birds were noted. A magnificent series of photographs, including many of the Albatross and Penguin colonies, was taken by Mr. Turner.

By an Order in Council dated May 5, 1927, the Carunculated Shag was added to the list of absolutely protected birds.

Another book on New Zealand birds has been added by Mr. Johannes C. Andersen, whose work on *Bird Song and New Zealand Song Birds* contains much valuable information about a number of indigenous and introduced birds in New Zealand.

W. R. B. Oliver,
Hon. State Secretary.

A Note from England.—Mr. E. M. Nicholson, author of *Birds in England* and *How Birds Live,* both of which books were reviewed in the July number of the present volume of *The Emu,* writes from Hertford College, Oxford, to disclaim that he is "a mere youth of 19 or 20 years, still under the wing of Julian Huxley." He has, in fact, reached the advanced age of 23 years, and he met Huxley for the first time within ten days of reading the *Emu* review. Referring to a suggestion that there is an insular note in his books, Mr. Nicholson says: "If writers like myself struggle unsuccessfully against insularity it is largely the fault of ornithologists abroad, who do not observe the sort of thing we want to know—I mean the majority of them. It is, and must continue, the exception rather than the rule for a man to have simultaneously the time, money, health, and not least intelligence necessary for fruitful observation in many parts of the world. If you in Australia, for instance, could describe your birds along the lines of Burkitt or Eliot Howard, it would not be hard to transmute the findings into terms of our experience here."

The Nornalup Camp-Out.

By JAMES POLLARD, R.A.O.U., Perth.

THE road dips steeply down to a little stream a mile or two west of the Big Bow River on the road from Denmark to Nornalup—down to a gully where one meets the first great eucalypts of south-western W.A., the straight, grand, grey-white karris. Here is a bridge where one may stand and look down at the swiftly-flowing water laughing over a pebbly bed, a typical stream for trout; but alas! there are no trout. With the tall trees grow the tall scrubs, acacias, hazels, willows, peppermints and the bracken-fern, all making the stream appear deep as the scrub and timber is tall, deep with shadows.

Beyond the little wooden bridge an opening between the scrubs lining the road, a glade; and here in this sunlit and shadow-splashed glade the camping members of the R.A.O.U. halted to make their first study of the bird-life of the karri country. But for the most part the birds stayed fluttering and singing in the waving tree-tops between two and three hundred feet overhead, and could be identified only by their notes—the Spotted Diamond-Bird by his "tink, tink," coming faintly from the high tops; the New Holland Honey-eater by his loud, chortling whistle, and others familiar and unfamiliar.

NORNALUP WATERWAYS.

Nornalup Inlet is a sheet of water some three miles by five, into which the Frankland, Deep and Walpole Rivers empty. On the landward side are karri-clad hills, steep and thickly clad with vegetation. On the coastal hills there is little timber—a few river banksias only—but in place of trees and tall scrub a dense carpet of natural grasses and small shrubs. The whole area, save for one small portion, is a Class A Reserve. An area of two hundred acres coming down to the Inlet on one end has been omitted from the sanctuary for some obscure reason, and it is hoped to draw the attention of the authorities to the fact that if this area is not added to the reserve, this beautiful sanctuary must some day be spoiled by the mark of the axe.

It was evening when we crossed the Inlet, journeying from the Frankland River Bridge at Nornalup down to the river's mouth, across the Inlet and some three miles up the Deep River by motor launch. Fortunately, the evening was fine, clear and dry, the sky star-swept when dusk had fled—and vastly impressive was that voyage. The shadowed hills were aloof across the waters, with something of that impenetrable mystery about them in the twilight which belongs to age and bygone times. A few Swans took wing as we entered the

Inlet and flew slowly and quietly away to another remote corner of the waters—if any one corner of these silent places can be described as more remote than another. Two or three Pacific Gulls flapped idly overhead. But the night soon shrouded all bird-life. Followed then many stoppages as we grounded on sand-banks, when sometimes our launch-driver was over the side helping his willing engine with his body and hands. Shallow waters all, with the sand-banks caused by the silts of three rivers shifting and changing with every change of season. The launch trip of 12 miles occupied four hours.

LIFE ABOUT THE CAMP.

Camp was made in a loft whose ends were open, a tarpaulin screening off the ladies, and we slept with the lullaby of a gentle wind stirring through the trees to charm us, with the only other sound the faint and far-away call of the Mopoke. Morning found us out bright and early, anxious to view what was to be viewed, to see what was to be seen, and in short to get breakfast over and be away into the fastnesses which, crowding down upon Tinglewood, beckoned to us all.

Mr. F. S. Thompson's property is the resort of tourists and holiday-makers. Twelve miles from Nornalup (by boat), and 36 miles from there to the nearest railway station makes it a handicap to farming of any kind save the growing of home-consumable produce. The Deep River at Tinglewood is perhaps a chain wide, shadowed by karris, an occasional red gum (*Eucalyptus calophylla*), wattles and hazels. It belies its name, as we soon found, after grounding upon its innumerable sand-banks. The house is built of karri slabs and beams, a tribute to the labours of Mr. Thompson and his son. It belongs, though, to the forest which guards it. Birds we heard about us all day long, and heard them much more often than we saw them. A Yellow-tailed Thornbill nested in a she-oak within a few yards of the loft; Scarlet Robins came frequently within the same range; and now and then Rufous Treecreepers climbed about the nearer trees, caring not that we saw them. High up in the karris we heard the chattering of Lorikeets, the melody of Brown Honeyeaters, the songs of Diamond-Birds, Warblers and many others. And often we heard the Golden-breasted Whistler flinging his music abroad from a few yards away, and the melody of the Thrush, but we saw them not. Each day was to be the same. We heard much; we saw little.

CLOSE COUNTRY.

Each day saw some of us in new country. We penetrated into the hills back of the camp; we went down the Deep River to the mouth of the Inlet and explored the land thereabouts; we made journeys across country to the coast; we visited spots near or within a day's march of camp, especially in search of the Noisy Scrub-Bird—spots where rumours had located it, or where local opinion held that they were favourable—and the end of each day saw us tired and realizing more grimly that this was grim country, able to hide its treasures, and that we had no more explored the areas we had visited than ants and beetles and grasshoppers could explore it. Each morning a feeling of optimism, bred of eternal hope; each evening a sense of defeat, occasioned by empty collecting-bags and a feeling that it were as easy for us to discover birds and mammals in that tremendous forest as it were for some such small creatures, as aphides, to discover the germs of decay in a wood-pile.

However, one must admit that we got something. To Mr. A. S. Le Souef fell the first bag in the shape of a short-tailed wallaby—as it has hitherto been known. It was an interesting catch, as the animal has been under suspicion, and now it will be proved that it is not a true wallaby, but must take an intermediate place between the wallabies and the kangaroo-rats. Of the rare birds principally sought for—the Noisy Scrub-Bird, the Black-throated Whip-Bird and the Western Bristle-Bird—little is to be said except this: We visited several spots where the Noisy Scrub-Bird was thought likely to occur—on the strength of local rumour and opinion formed by leading members of the party. Sometimes we found these thickets—always thickets—burnt out; if not, well the country was so dense that many a bird was heard within a yard or two and never seen. We were not long in concluding that there was little likelihood of the bird being found. It did not seem to be calling. Not that anyone believed it to be extinct; on the contrary, we came to the conclusion that it was very likely that the bird was there—but we might visit the locality a dozen times and never see or hear it. Out on the coastal country we heard a strange whistle which may have been the Bristle-Bird, but we never saw the author of it though the call was made frequently. The Black-throated Whip-Bird we did not hear nor see.

For the rest, I might mention that on two or three occasions strange calls were heard—bird-calls no one present recognised. Fewer than a dozen bird-skins were procured all told. One of these was of a Caspian Tern which we found nesting on a little rock on the landward side of the Inlet—in company with half a dozen Gulls. (It may be of interest to mention here that at Wilson's Inlet, a few miles east, on our return trip, we also found one nest of a Caspian Tern on a rock island, where there were rather more Gull's nests than on the rock in Nornalup Inlet.) A Brown Hawk found nesting by Mr. A. S. Le Souef was brought down and the eggs procured by him. These proved of more than ordinary interest for the fact that while the ground-colour of one was the normal cinnamon shade, that of the other was a light biscuit colour. Plumage features of the Western Rosella, the Blue Wren and a Thrush suggested variations from specimens found elsewhere. The White-tailed Black Cockatoo, the Brown Treecreeper, the Yellow Robin and one or two other common birds completed the bag.

Of mammals nothing of interest was added to the pseudo-wallaby, save perhaps a bat, which no one recognized. And thereby hangs a tale. Not a bat did we see flying during our camp, but on the last night the domestic cat most obligingly brought this particular bat into the house and laid it at Mr. Le Souef's feet! The common dusky-footed swamp-rat was procured twice, once near the river and then out a few miles on the coastal sandhills.

REEFING.

A sheltered bay littered with granite rocks about a mile beyond the Inlet on the west side evoked a blessing from Mr. Ashby upon the head of Mr. Frank Thompson, who guided us to it. Here surely was one of the happiest hunting-grounds a chiton-hunter could have—and so it proved to be. Here, and in a little cover a little way up the coast, during two days Mr. Ashby procured what is probably the best collection of chitons that has ever been made in the State. Apart from those interesting survivals of lowly molluscan life, the rocks proved attractive for their wealth of other marine forms—starfish, sea-worms, whelks, mutton-fish and others indescribable for their beauty of form and structure being thickly clustered on every rock or swimming free among them. One beach was strewn with shells, the only beach within miles where shells are thrown up, and among them many of the lustrous cowries prized by collectors.

Mr. Le Souef told me that among the holes in the cliffs on the coast he found unmistakable signs of foxes. I expressed some doubt on account of never having heard of the fox so far south in this State. He then assured me that he had traced the trail of the fox from the East around the southern coast, and said he believed that foxes which have from time to time been reported in the vicinity of Geraldton and the lower Murchison must have got in *viâ* the coastal route. Mr. F. R. Bradshaw, of Tambellup, told me later that foxes have been seen in his home district, close to the Stirling Ranges. It is not pleasant to consider the possibilities of the fox making his home in these rough hills, which will never be other than a natural reserve, and also in the Nornalup country, one of the densest tracts in all Australia.

THE CHARM OF WILD FLOWERS.

Of the flowers growing in this natural garden one cannot write adequately. Over our heads waved tree-hovea, wattles, pink boronia, hazel, pimeleas, euphrasias and many others, and we never tired of discussing them. The wealth of wild flowers everywhere was simply magnificent. The coastal hills, low but steep, are difficult to traverse because of the heath-like growth polishing the soles of the boots, and the end of one hard day's tramp of perhaps 10 miles each way to the coast and back saw the party tired to the verge of exhaustion—so much so, in fact, that the next afternoon we were glad to seek our bunks and sleep. But at the end of that tramp, before we spoke of birds or beasts, we talked of the flowers, a glowing tribute which W.A. members heard with gratification.

Back of Tinglewood during a trip to the top of Mount Clair, whence a view was to be had through great karris and tingle-tingles of the coast and the sea on the one side, and of the forested hills on the other, we found travelling difficult owing to the dense mass of crowea and bracken-fern. Half way up the hill we were glad to rest in the midst of karri, wattle and hazel, where we had penetrated through and often over the fallen litter of a past growth of these trees, and where the new growth shut out the light of the sun. Sitting there we listened to the notes of Thrush and Whistler, of Diamond-Birds and Fan-tailed Cuckoos, of Flycatchers and Parrots—all unseen either because they were high in the giant trees or close at hand screened by the scrubs.

CONCLUDING NOTES.

It will be seen that from a collecting point of view the camp-out was disappointing. A few birds were procured, two or three mammals, a handful of insects by our youthful entomologist and two or three lizards. What information is gained from them can be only slightly supplementary to present knowledge. Mr. Ashby's collection of chitons must be regarded as the most valuable contribution from the Nornalup area. Other things the country holds to itself, and will hold them for many years yet—perhaps centuries. No one who has not visited this far southern land can possibly conceive of its vastness, its close nature—and of its grandeur and majestic beauty. What life it hides no man can tell. It is admitted to be teeming with many forms of life, some of which in all likelihood have never been recorded. Ten days is a little time to spend in this country, and at the end of the camp-out we had not even grown familiar with it. It was generally admitted that it would take at least twelve months to make anything like a comprehensive study of the flora and fauna. And no man in a lifetime could comb this country thoroughly.

As for the Noisy Scrub-Bird, a year's searching would not prove it to be extinct. The bush is too luxuriant in wealth of natural growth, too dense, and too difficult to work for that question to be answered easily. To make the work of collectors more difficult during this year's camp-out, it rained almost every day. Nornalup is a wet area, and this fact must lessen the chances of certain birds being seen or heard. Apart from the disappointing results, I think I am voicing the opinion of all who visited Tinglewood when I say that we shall always remember with pleasure the wild grandeur of the karri forest and the scenic beauty of the rivers and sea-coast, for these pictures were as impressive as was the wealth of flowers blooming down there in the heart of Nature's garden. We shall remember, too, the kindness and thoughtfulness of the Thompsons, manifested many times, and the spirit of *camaraderie* which infused itself upon and around us all during those days and nights.

The return trip was made more enjoyable than we expected, thanks to the Smith Bros. of Denmark, through whose kindness we were able to see some of the Denmark Group Settlement areas, and the beauties of Wilson's Inlet—a fine sheet of water at Denmark which is one of the prettiest spots in the south-west, and the many interesting features of which I hope some day to put before the Editor of *The Emu* in another article.

A Curious Rosella.—About eighteen months or two years ago Mr. L. Devlin, stock inspector at Casino (N.S.W.), informed me that he had seen a most peculiar Parrot. It was with a flock of Rosellas, which were fighting it and evidently trying to drive it away. Mr. Devlin has now informed me that a man in charge of a tick gate on the Casino side of Drake, has one of these curious Rosellas caged, the bird having been secured in the nest when a young one. The distance between the localities where these birds were seen would be about twenty miles. The following description was kindly supplied to me by Mr. Devlin: "Head, neck, base of tail, and the whole under-part of body red; back black with red edging tinted greenish-yellow; blue feathers in wing and tail; slightly smaller than the ordinary Rosella." The red in this bird was the scarlet shade of *Platycercus eximius*. Is this curious bird a hybrid between the Red-backed and Crimson Rosellas?—Florence Irby, Casino, N.S.W. (October 20, 1927).

The Educational Value of the Study of Ornithology.

Presidential Address by Edwin Ashby.

In my presidential address at the R.A.O.U. Congress last year, I pointed out some of the many unsolved problems of Australian avifauna; I endeavoured to demonstrate, with the aid of various illustrations, that it is a misconception to suppose that knowledge of our birds is nearing completion—that, in fact, it is really still in the foundation stage. The training of new working students is the greatest need of Australian ornithology to-day. The *Ibis* of April last, in referring to Mr. Mathews' splendid work on Australian birds, says that he "is in a very real sense the pioneer of Australian ornithology," thereby endorsing my statement that Australian ornithology is only in its beginning.

My theme to-day is really the training of the worker. By this I mean a real ornithologist—an "all-round man" who is essentially a "field worker"; one who knows the birds in their homes, an accurate observer; who not only has learnt to distinguish birds by their colour-markings and form, but also by their calls, song, and movements; and who knows just what part of the bush they frequent. He must be a collector; he must go through the drudgery of making skins after a day of long toil in the bush in which the stimulus of the search had made him unaware of his flagging energy. Then he must compel himself, although tired in body and mind, to spend the early hours of the night in making skins; this has an important formative effect on character and makes for endurance. If the important quality of accuracy and truth is to be developed, then collecting is an essential part of an Australian ornithologist. But, you say, what about the preservation of our native birds? I reply at once, that scientific collecting has never been detrimental to the preservation of bird-life, and I affirm that all effective legislation for bird protection is the result of the efforts and the knowledge of those who have been, or are now, collectors.

Many people condemn in others what they do not want to do themselves, often without realizing the real reasons that actuate them. To talk as if it was a sin to take a bird's life and to consider it is a gracious act to kill a mouse or a mosquito, evinces a large amount of credulity and a grave inaccuracy of conception. The life of a mouse is of as much importance to the mouse as is the life of a bird to it. Nature supplies sufficient extras of all species to allow of at least nine out of every ten offspring of most birds dying a violent death. If it were not so we should soon have an overplus and the species would become a pest instead of a pleasure. A certain amount of destruction by man is provided for by surplus production; what we have to make sure of is that man does not take an undue toll.

The work of collecting, as well as observing with the aid of a field-glass and photographing birds in "real life," develops qualities in the growing mind of youth, as well as in that of the adults, that cannot be otherwise developed.

There is the gift of quiet observation, of accurate discrimination—the object is not only imprinted on the retina of the eye, but is also vividly impressed on the retina of the mind, which is a very different thing. The student not only learns to discriminate colour-differences, but also differences of form and of movement; so much so that some species may approximately be determined at a distance by flight alone.

Then again, besides the sense of seeing, that of hearing comes into play. How true it is that few people have "ears to hear"! What is meant is that, although most people have excellent physical organs of hearing, the bird-notes causing the vibrations of their tympana, their brain through their neglect does not perceive it. For example, my house is half a mile from the railway station, and often in walking to the train I have spoken to fellow-passengers of the various bird-calls that one could hear in that short distance. Yet in most cases they would disclaim having heard any sound at all. The reason was not that their physical hearing-apparatus was deficient, for it was distinctly better than mine; what was really the matter was that they had neglected so long to be interested in these sounds that their brain thought it not worth while to notice them, and the gift of mental perception had become almost atrophied. Every normal child has at a very early age quick powers of observation and a wonderfully acquisitive mind. The study of ornithology is a splendid means of educating and directing these qualities.

The field-glass, however good, is only approximately reliable in a small country such as Britain, where the number of possible species and subspecies has been accurately determined and the limits of known habits defined. Under such conditions field-glass observations in most cases are reliable; but in Australia we are dealing with a continent where avifauna is both rich and diverse and about which our knowledge is at present extremely limited.

Under our present methods of issuing permits I have had on numberless occasions to refuse to instruct young fellows in the art of skinning, though they would have been keen to learn. My refusal has not been because it would not be good for the lad to collect, and not because his collecting would be harmful to the survival of any native bird, but because our law-makers have never understood the educational value of collecting. Our laws as framed do not effectually save our birds, but they do effectually prevent the development of young ornithologists; a person never becomes expert at anything except it entails the drudgery of work. Nature study without being co-related with the work and labour of proper collecting, is rarely more than skin-deep.

The custom of the colleges and schools under the Education Board of the Society of Friends in England 50, 100, perhaps 150 years ago, was to train all the young people in making collections. The result, according to statements made to me by university professors and educationalists, was that these scholars, in later life, quite out of proportion to their numbers, filled the science chairs in various universities. The late James G. McDougall, LL.B., stated to me that, "Wherever you meet a Friend you will find he is a naturalist"—meaning that the interest aroused in natural history during his school career was never lost in later life.

I stated at an R.A.O.U. Congress several years ago that "if we could effectively insist that every person who shot a native bird should make a skin of it, we should have all the protection that was needed." For probably each skin would cost an hour's drudgery. This fact was admitted by all present, but the problem was dismissed with the usual conservative, "We cannot enforce it!" In the interest of Australian ornithology of the future, in the interest of the rising generation, and as a constructive alternative to the universal picture-show, I suggest that we make an attempt to come as near to the ideal as we can. Once you develop such a sense of the value of the mere body of an Australian native bird, that a lad is compelled to make a skin of the corpse he has picked up, you will have done more than you think to make him a bird-lover. I suggest that young people who desire to learn to make a skin-collection shall be granted permits to collect certain specified species of native birds, and, later on, if they are proved to have done good work, the permit be extended to include certain other species.

Probably all ornithologists of any standing commenced by making collections in their youth. Further, lads and lasses would be much better men and women if they became in early life working naturalists. The making of a collection of bird-skins entails more drudgery and hard work than is the case in almost any other branch of natural history. From this fact alone it is certain that the number of working ornithologists, as I am using the term, will always be limited, and it devolves on every member of the R.A.O.U. to render them practical help.

The instinct which leads both boys and girls in country schools to make egg-collections is not in itself bad, but at present it appears to be absolutely undirected. To imagine that these illicit collections are not being made is only a pretty fiction; what is really needed is not prohibition, but wise direction. The principal of a large High School in England said to me in 1922, "What we need is that, say, five years be spent in making a school collection and then it be destroyed and another collection started." I, of course, objected to the waste in destruction. He admitted this, and explained that he recognized the great value to the scholars in the work of making the collection. But, he said, whatever the after-use of the collection might be, the process of making it far outweighed in value, as an educational factor, all other uses to which the collection might be put. I should add that no collection of native birds' eggs should be allowed to be made without insisting that the correct data be co-related with the eggs themselves, such as date, number, incubation, position of nest, character and composition of nest, marks about the birds, and data supporting the correctness of identification.

If I was at liberty to do so, I should have liked to suggest that a small committee be appointed to go into the question of granting limited permits to young people, and if thought desirable the committee formulate recommendations respecting these, to be brought forward at the next Congress.

[The above paper being a presidential address, it has not been editorially amended save in the construction of sentences. The general views set out by Mr. Ashby, however, have no place in the policy of the R.A.O.U., and are not in accord with the experience and opinions of most members of the Union. Very few bird-students question the necessity for judicious collecting of specimens. But that necessity is not so vital as it was in Gouldian days and in the work of certain later ornithologists, and there is certainly no justification now for promiscuous collecting, as represented, for instance, by shooting at random, by the killing of familiar birds near State schools, or by the killing of birds near nature-lovers' houses. Nor does it appear that any national purpose will be served by teaching boys to slaughter birds so that they may "go through the drudgery of making skins."

What the Society of Friends did in England many years ago need not greatly concern Australians. Seeking to develop character in our boys, we will not present them with guns and skinning-knives for use on valuable birds; we will equip them with cricket bats and footballs by day and good books by night. And if a feeling for bird-study develops in a particular boy, we will indicate to him, firstly, that birds are the property and pride of the nation and that the person who kills birds or robs nests without governmental permission is corrupt to his citizenship, untrue to himself, and a source of irritation to better-balanced people. This adjusted, we will teach that boy to be a bird-*watcher*. Indeed, he will learn for himself that pleasure (aside from the primitive pleasure of killing), and knowledge in bird-study can accrue only by steady observation and note-taking; that the man who shoots birds on sight loses more than he gains; and that slaughter is justified only when some vital point is involved, and not merely for the sake of "drudgery," to be followed by stowing lifeless bodies in a cabinet.

Mr. Ashby declares that "our laws as framed do not effectually save our birds." He affirms also that "all effective legislation for the bird protection is the result of the efforts and knowledge of those who have been, or are now, collectors." These two statements assail each other. Anyhow, the second one is merely trivial, and indicates that its author knows very little about the genesis or effect of bird protection laws in Australia generally. Similarly, it is doubtful whether one should waste time discussing the bland contention that the killing of birds is as justifiable as the killing of mice and mosquitoes. If Mr. Ashby really believes this, he provides a startling example of the state of mind that may be brought about by intensive collecting.

Let us, then, while giving seemly thanks for the laws that limit the killing of birds, advise Mr. Ashby's enterprising "young fellows," if they are still determined on cultivating "endurance" through skinning, to turn their attention to mice and mosquitoes!—EDITOR.]

Some Aspects of Bird Protection.

By JAMES POLLARD, R.A.O.U., Perth.

IT is said that birds are the first and last favourites of man. The simple peasant and the advanced bird-student alike can appreciate the charm of the singing of a small, obscure form in the bush. But not all birds are favourites, and there are many opinions as to which birds need to be regarded as such. There is no general understanding of the value of birds. And so long as this exists there can be no true protection.

Bird-study should have as one of its principal aims the maintenance of a proper balance of bird life, and this cannot be achieved until we have that general understanding of its value in relation to human life and development. How can it be achieved? One man says: Kill that Eagle, for it killed my lamb; another says: Let the Eagle live, for it kills many more rabbits than lambs. And so with other birds which are both useful and destructive. Admittedly, the best course to pursue with these is to destroy when they become a menace, and to let live when the harm they do is inconsiderable compared with the good they do. Legislation should be along these lines. The laws of the land are as educative to the grown man as the curriculum of the State school to the boy —perhaps more so, for the mature mind is more retentive and laws thus make more lasting impressions than the rules of the school.

Mr. Ashby in his address advocated teaching boys collecting so as to prevent the random and wanton destruction of wild life, for which we grown-ups are always condemning them. But if this idea were adopted in all schools, I am afraid it would be of more danger than service. Such teaching would inevitably result in training many boys to go on collecting throughout their lives, and thus make for too many collectors. It would be a far better thing if the youth were taught how to appreciate, how to value, and how to respect bird life—and not how and when and where to collect.

But before we can hope to impress the young idea in this direction we have first to put our own house in order. The general public is more impressed by the trade in birds and eggs than it is by what students and scientists are doing in the direction of educative bird-study. The ordinary man recognizes the usefulness of this education, though he may not want it for himself, and he is generally resentful when he hears that this bird or that is being trapped in thousands. He is, I fancy, at a loss to understand why, for instance, a government goes to the extent of preserving Mutton-Bird rookeries from sand-blows while the young birds and the eggs are permitted to be taken for trade in incredible numbers each year.

You know the tragedy of the Egrets and the Birds-of-Paradise, of the Grass-Parrots and the Superb and the Night-Parrots. All these are approaching extinction mainly because man has trapped them to gratify the desires of an uneducated people.* I say "uneducated people" because I believe that were many of those who have worn plumes, or caged birds for pets, aware of the slaughter they indirectly caused, there would soon be more limited markets for birds and plumes. Happily the trend of natural history education to-day, both through the Press which reaches the public and in the schools where the juvenile mind is touched, is in the direction of what I term, for want of a better phrase, "understanding of natural balance in life," and we should encourage this whole-heartedly.

This aims at putting our house in order. So long as the youngster notes the grown man amassing eggs or birds in either a large and careless way, or in a limited and systematic manner, he has some moral right to challenge any suggestion from the man that he should not kill and collect as he pleases. Ornithologists who have as one of their front-rank objectives the preservation of bird life are not excused by the youth. Most of us have eggs or birds, skins or plumes, or even bills and claws. Is it necessary that even we should collect? True, we are not wanton destroyers; but the more collectors we have, the more waste occurs.

I have dealt so far with local phases. I might add that destruction is going on in almost all countries, not only among birds, but also among mammals and fishes. The beaver and the musquash and other fur-bearing animals are persecuted year by year with increasing ardour. Even the elephant, one of the most noble of animals, is massacred at times. The pollution of rivers and coastal seas destroys fish in inestimable numbers. Turning again to birds, and to our own birds, we know that the Finches of the north are trapped in thousands annually, and that many of them die during export overseas. Waste again. I believe that the Finches have become so rare in the north-east as a result of this trade that the Queensland Government have prohibited the trapping and export of these birds. It devolves upon us to do all we can, in combination with kindred associations, to prevent such terrible wastage of life. I know that we have game laws and "protected lists," but it is patent that these fail of their purpose when each year sees many and various species of birds steadily diminishing.

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* The Night-Parrot has certainly not been decimated by trapping.—EDITOR.

I would turn now to another phase of bird-destruction which some will no doubt think is antagonistic to present ornithological methods. Now and again it happens that a bird becomes so rare that some collectors, acting on an allegedly scientific basis, regard it as imperative to exterminate the species—to capture it so that we may possess it for all time in some museum or other collection. To me it is a sad thing that the rarer an animal becomes, the more keenly man hunts it. Your advanced collector is never so thrilled by the acquisition of a specimen as when it is one extremely rare. He says that the educational value of possession excuses him its destruction. So much, then, for the value of one of Nature's, and man's, dearest treasures! Once I read in a book: "A bird in the hand is a pathetic thing—either a limp and drooping bundle of feathers with a loose neck and a glazed eye; or else a quivering handful of fear, so fluttering and poignant that no sensitive hands can continue to be its prison walls. But a bird in the bush! It is a very battery of life in little compass; and in its own haunts, skilfully masked from the marauder, there may be lyrics and a love-match, and the breath-catching beauty of five blue shells in that cupola of twigs!"

Dr. Leach has written in his *Bird Book*: "Collectors as well as plume-hunters should be compelled to keep hands off our exquisite birds." That is something worth remembering; and if the bird sought is so rare that in a little time it will in all probability be extinct, then I think that competition for the possession of it should end. That is the essence of bird-protection.

Fauna of the Stirling Range (W.A.).

By F. R. Bradshaw, Tambellup, W.A.

During the camp-out Mr. F. R. Bradshaw, of Tambellup, gave an address on the Stirling Ranges, a tract of rough mountainous country about 30 miles north of Albany, and accounts of animal life he had noted there during many visits and explorations. Almost the whole of this hill country is included in Western Australia's greatest National Park, and comprises 270,000 acres. Mr. Bradshaw exhibited maps of the range and several photos, and members were thus able readily to follow his descriptions.

The nature of the country, he said, is rough and difficult to examine. The peaks rise gradually eastward. Peak Donnelly on the western end is 1,400 feet; on the east side Mt. Toolbrunup reaches 3,341 feet, Bluff Knoll 3,640 feet and Ellen Peak 3,420 feet. The timber is red gum and white gum and jarrah, all more or less stunted and growing in the valley. There is little grass except on the tops of the hills. Sandstone is the general formation. There are a few streams, but most of them disappear underground, and in summer water is scarce except at Dale Spring—which is always fresh, whereas other waters go salt. Blackboy scrub and shingles are the nature of the lower slopes; alpine flora is characteristic of the tops, and cliffs start generally about 400 feet from the tops. The range affects the climate of the south, the 20-inch rainfall line curving round the south side, and the peaks stopping a good deal of rain from going east. On the peaks the average rainfall is about 40 inches, and on the east side about 15 inches.

Mr. Bradshaw referred to the visits made to the range by Milligan and Conigrave, and F. L. Whitlock, and said that his information would be supplementary to the accounts given by those gentlemen. He had met with a number of species not mentioned by Milligan, Conigrave and Whitlock, and there were others about which he was able to give more information. Records of species new to the ranges were in all cases confirmed by the taking of specimens. Following is a list of the birds mentioned by Mr. Bradshaw, accompanied by notes:

Varied Magpie (*Gymnorhina dorsalis*).—Not common, and seen only in the valleys. "A marked characteristic of the bird-life of the Stirling Range is that birds which are chiefly insectivorous are a great deal less common than Honeyeaters. The Stirling Range is a paradise for Honeyeaters."

Blue-breasted Wren (*Malurus pulcherrimus*).—Not numerous in the Range, but abundant in mallee country about 10 miles north. On Nov. 9 last year obtained a nest and three eggs—now in the W.A.

Museum. Gilbert first obtained this species in the Wongan Hills in 1840. In 1886 George Masters obtained specimens on the Pallinup or Salt River, a little to the north of the Stirling Ranges. In 1902 Milligan and Conigrave procured specimens on the north side of the Ranges. During 1910-11 Whitlock secured several sets of eggs for the H. L. White collection.

Black-cheeked Falcon (*Falco peregrinus*).—Not previously recorded from the Stirling Ranges. First met with several pairs in 1919 on a wild, rocky mountain called Talyuberlup, 2,500 feet. "Standing on the top of this mountain on a fine day, their hunting activities can be watched in detail. From the cliffs they fly down to their hunting-grounds in the gullies and fly slowly a few feet above the scrub. When the prey is secured they rise in a great spiral flight until they reach the height of their young, then fly straight in." Sometimes they exact toll from flocks of Ducks and other waterfowl flying over the tops of the range.

Red-winged Wren (*Malurus elegans*).—Present only in central and eastern parts; they live in the deep, moist gullies and are sometimes met with about two-thirds of the way up the mountains.

Leaden Crow-Shrike (*Strepera versicolor*).—In 1920 a specimen was obtained in the central parts of the range; it was very brownish in colour and similar to *S. intermedia*, of Eyre Peninsula. Specimens from the locality 10 miles north of range also show some degree of brown colouring. The bird is a great roamer; it is met with on the top of Bluff Knoll.

Southern Emu-Wren (*Stipiturus malachurus*).—Specimens obtained in mallee country 10 miles north. Males have a distinct streak of blue above the eyes. Present also in the range, where the eye-streak was not so marked, while on the Kalgan River further south the bird showed the eye-streak still less prominent.

Rock Field-Wren (*Calamanthus montanellus*).—Discovered by Milligan in 1912. Inhabits open country between the range and the mallee to the north, where are stretches of heath-like country. Also met between the range and the Kalgan, in similar country.

Tits (*Acanthiza*).—Not numerous in the range. The Broad-tailed Tit (*A. apicalis*), was present. Collected eggs of the Plain-coloured Tit (*A. inornata*), at the end of October.

White-bellied Shrike-Tit (*Falcunculus leucogaster*).—Present occasionally in white gums. Nests in inaccessible tops. Males move about clipping off leaves.

Golden-breasted Whistler (*Pachycephala pectoralis*).—Present along the gullies. Nests in October and November.

Red-tipped Diamond-Bird (*Pardalotus ornatus*).—Abundant in white gum country. Nests in little holes on the undersides of branches.

Spotted Diamond-Bird (*Pardalotus punctatus*).—Found in moist gullies in central and eastern parts. Nest found in the bank of a creek, under vegetation, with a three-foot tunnel.

Golden-rumped Diamond-Bird (*Pardalotus xanthopygius*).—Not found in the ranges, but occurs in the mallee. No nests found.

Yellow-cheeked (*Platycercus icterotis*), Yellow-collared (*Barnardius semitorquatus*), and Red-capped Parrakeets (*Purpureicephalus spurius*).—First two not common; the last more numerous, and a nest had been found in a white gum.

Regent Parrot (*Polytelis anthopeplus*).—Occurred in the mallee. New species to the locality. In February, 1921, there was a sudden invasion of what appeared to be immature birds, in flocks of sixty or so. The colour suggested remarkable changes. On discussion, during which Mr. Ashby mentioned that the bird north of the

Murchison was not yellow as it was in the lower districts, it was surmised that the northern birds had come down to these ranges in that year. The bird had not been found breeding in the ranges.

Brown-headed Honeyeater (*Melithreptus brevirostris*).—Found in 1911, with nest at the end of a drooping eucalypt bough.

White-eared Honeyeater (*Meliphaga leucotis*).—New.

Emu (*Dromaius novæ-hollandiæ*).—Not numerous, but generally a few about.

Scrub-Robin (*Drymodes brunneopygia*).—A dark form found in the mallee; new to the locality.

Mountain Duck (*Casarca tadornoides*).—Plentiful; really too numerous.

WADING BIRDS.—Ten miles north of the ranges is a region of great salt lakes, said Mr. Bradshaw, where he had found the following birds:

Little Stint (*Erolia ruficollis*).—Numerous, and new to the list.

Red-capped Dotterel (*Charadrius ruficapillus*).—Present in great numbers.

Hooded Dottrel (*Charadrius cucullatus*).—A few present.

Curlew Sandpiper (*Erolia testacea*).—New.

Sharp-tailed Sandpiper (*Erolia acuminata*).—Present.

Banded Stilt (*Cladorhynchus leucocephalus*).—A big mob had been seen by Whitlock in 1911. In 1924, when approaching a remote lake further north, Mr. Bradshaw saw several thousands massed together. There was a tremendous roar of wings when they rose, and it was like a cloud passing before the sun. (Mr. Ashby said that though this bird was not known to leave Australia, its nest and eggs had never been found.)

MAMMALIAN LIFE.—Questioned by Mr. A. S. Le Souef, Mr. Bradshaw spoke of the following mammals in the ranges: Dormouse-opossum (*Dromicia concinna*). Common pouched mouse (*Sminthopsis murina*). of which he had found a family in the deserted nest of a mound-ant. Fat-tailed pouched mouse (*Sminthopsis crassi caudata*).—Found nesting under clods, seldom in logs. Honey-mouse (*Tarsipes spenseræ*).—Rare; found about Mt. Toolbrunup; south of the ranges, and west of Tambellup. Yellow-footed pouched mouse (*Phascogale flavipes*).—Two specimens secured from hollow "blackboys" in the central parts of the range. Kangaroo (*Macropus giganteus*).—Numerous. Brush-wallaby (*Macropus irma*) and banded ant-eater (*Myremecobius fasciatus*).—Numerous at Tambellup. Opossum.—Present, but thinned out by trappers. Long-eared Bat (*Nyctophilus*).—One specimen recorded. Rabbits.—Increasing rapidly, especially on the sand-plains to the north.

Nesting of Plovers.—A pair of Spurwing Plovers have nested several seasons in the same site, on a small island in a lagoon. The nest and eggs furnished a wonderful example of matching surroundings. The island, composed chiefly of samphire and a little native couch-grass, is barely half an acre in extent, and in wet seasons it is almost covered with water. The pair of birds have been noticed for many years now, and even when they rear a brood there are no other pairs come into their gully.—HARRY H. NEWELL, Hindmarsh Island, South Australia (November 1, 1927).

Peculiarities in the Distribution of Birds in Western Australia.

By F. LAWSON WHITLOCK, R.A.O.U., West Leederville, W.A.

WHEN I visited the West Kimberley province some three years ago I was greatly impressed with the different character of the avifauna, when I compared it with that of adjacent parts with which I was familiar; it was almost like entering a new country. I had a fair knowledge of what species are to be found in the de Grey river district, having collected a little on the main stream, and to a considerable extent on the Coongan and Nullagine, two of its largest tributaries.

The Kimberley provinces geographically form part of North-west Australia, and the de Grey country is included in what we ornithologically term the true or north-west proper. Under these circumstances we should expect to find an overlapping in the ranges of various birds commonly found in either area. This only occurs to a very partial extent, for there appears to be some natural bar which prevents this taking place, and though the de Grey is only three hundred miles distant in a west-south-west direction from the Fitzroy River, in the West Kimberley, it is rarely that certain species, to which I shall presently call special attention, wander from the neighbourhood of either river to which they seem to be restricted.

This natural barrier can hardly be due to climate, for, though the Fitzroy enjoys rather a heavier fall, both rivers lie within the zone of summer rains, and the cloudless skies of the so-called cooler months are common to both. Neither is vegetation strikingly different, unless we single out small areas for comparison. Take away the boab trees, pandanus palms, and wild fig trees from the Fitzroy country, and the remaining timber greatly resembles that found on the de Grey. No doubt, a closer investigation by a competent botanist would reveal many specific differences amongst herbaceous plants, but it would also reveal many genera common to both areas. But I know of few species of West Australian birds whose distribution depends to an essential extent on the presence or absence of particular plants, though there is evidence—which may nevertheless be quite misleading—that points to the contrary.

To point to an example: *Acanthiza morgani*, the Slender Thornbill, in the dry interior is strictly confined to the samphire flats surrounding the big salt lakes; yet it flourishes equally well amongst the harsh, scrubby vegetation of the Nullarbor Plain. But an *Acanthiza* will hardly help us to account for the peculiar limitations to bird ranges in the Kimberleys and north-west proper; for up to the present I have not found a single example in either area, despite the fact that members of the family are found in Eastern Australia well up into Queensland.

This is the more remarkable, as even in this State they are common enough in the dry interior and also in the wettest portions of the extreme south-west. The familiar *Acanthiza chrysorrhoa* adapts itself to a rainfall varying from nine inches up to sixty, but despite the latter fact is absent from both the Coolgardie and Murchison goldfields, and, to make the matter more puzzling, breeds freely near the James Ranges in Central Australia.

But the *Acanthizæ* are not alone in being unaccountably absent from the West Kimberley and true north-west, for the genus *Sericornis* is quite unrepresented. Even the Red-throat (*Pyrrholæmus brunneus*), does not penetrate so far, though well distributed throughout the dry interior. Another conspicuous genus, *Cinclosoma,* also is absent. Yet we find *C. castononotum* breeding in the south-west within the zone of a thirty-inch rainfall, and ranging eastward to at least as far as the drier Noresman country, and northward to the still more arid conditions prevailing on the several Coolgardie goldfields, where it meets the range of *C. castaneothorax,* from further north. Probably *C. cinnamomeum* will be found to occur in that unknown portion of this State to the eastward of the Canning stock-route when it has been scientifically explored. One remaining member of the family, *C. alisteri,* appears to be restricted to the Nullarbor Plain. In face of the wide distribution of this genus, its absence from the north-west is unaccountable.

To return more particularly to the West Kimberley. All along the banks of the Fitzroy River one meets with pairs of the Sulphur-crested Cockatoo (*Kakatöe galerita*), but as far as my own experience goes, it is a very rare visitor to the de Grey River system. This is remarkable, as I believe in eastern Australia it ranges right down to Victoria. It is always considered a hardy bird, enduring the cold climate of Europe quite readily when in captivity, so that we might reasonably expect to find it under the more favourable conditions prevailing in this State, and where its relative, the little Corella (*Kakatöe gymnopsis*), simply abounds, and where the more delicate Pink Cockatoo (*Kakatöe leadbeateri*), has a range which includes the West Kimberley and the country five or six hundred miles to the south, even if we admit that the range of the latter is patchy. Then again, what should limit the range of the sulphur-crested bird when the red-tailed species, *C. banksi,* can exist and breed from one end of the State to the other?

When I reflect on these peculiar facts I am quite at a loss how to account for such anomalies of bird distribution. Cockatoos are birds of powerful flight and not averse to wandering. I met with large flocks on certain islands in the

Dampier Archipelago, situated some distance from the mainland, and feel pretty certain pairs were breeding in one instance amongst the piles of *débris* at the foot of a fallen cliff, which is some evidence of an adaptable disposition. It might occasion surprise to members to hear that I have never seen a Lorikeet in the north-west proper. But travel to the Fitzroy country and the pretty Varied Lorikeet is to be met with abundantly, along with the gorgeous Red-collared Lorikeet. These are north Australian Lorikeets, but the Red-winged Parrot, which is regularly found in their company, has a range in eastern Australia extending into New South Wales. Yet in this State the Fitzroy seems to mark its southern boundary! Lorikeets, which are the true Honey-eaters, seem able to exist under very varied climatic conditions. The Purple-crowned species is abundant in the wettest forest country of the extreme south-west, and thence its range extends eastwards to the dry Noresman country and the Coolgardie goldfields, only being limited by the dwindling of the eucalypts as the Nullarbor Plain is reached. Why do not Lorikeets occur amongst the innumerable gums lining the banks of our north-west rivers?

Whilst referring to the Parrot family I must draw attention to a comparatively recent event. Before the country served by the Wongan-Mullecoa railway was opened up to settlement, and wheat-growing became the chief industry, we seldom heard anything of the Regent Parrot. At the present day it visits the wheatfields in large numbers to feed upon the ripening grain. Breeding pairs are establishing themselves even further westward, and occurrences in the great southern districts as far south as Tambellup are becoming regular. Prior to this, where were all these Parrots living and under what conditions?

A visitor to the West Kimberley is sure to notice two large and conspicuous birds. These are the Jabiru and the Brolga. I saw the first Jabiru amongst the small mangroves growing on the mud flats at the mouth of the Fitzroy, but though there are extensive areas of the same class of country both at Condon and Port Hedland, further along the coast to the south-west, I never saw nor heard of the occurrence of the Jabiru at either locality, where I have no doubt it would find food in plenty. The Brolga, I believe, regularly migrates to Victoria. It is common enough in the West Kimberley, stalking about the home paddocks in quite a familiar manner. Yet it is rarely seen in other parts of the State.

When picturing the tropics one visualizes a more or less evergreen country with a luxuriant vegetation. As a matter of fact, such conditions only prevail in the West Kimberley for the brief period of the summer rains—four months or a little more at the outside—and for the rest of the year the herbage is burnt brown and recumbent. The conditions in the true north-west are if anything a little better in appearance, and it is a puzzle to account for the absence of the Brolga from there.

Another curious absentee from the greater part of the west is the common Kite, *Milvus migrans.* According to my observations, this is a rare bird except in the far north, and reports of its occurrence generally prove on investigation to refer to some other species. Thus on the Fortescue River the Little Eagle, which is common, is always called the Kite. It is equally common on the de Grey, but when we reach the Fitzroy the true Kite takes its place and at the same time the Whistling Eagle becomes prominent. Certainly both these smaller Eagles occur in other parts of the State, but which is the commoner it is hard to say, as owing to their similar whistling calls one is often mistaken for the other.

The Roller or Dollar-Bird is a conspicuous species wherever it occurs, and is therefore unlikely to be overlooked. In eastern Australia it migrates far to the south. Yet in this State it rarely passes further than the Fitzroy country. In like manner, the Great Spotted Bower-Bird, though common enough along the rivers of the West Kimberley, is rarely seen on the de Grey, where its place is taken to a limited extent by the Western Bower-Bird, *C. guttata.* The distribution of the latter interesting species appears to be rather eccentric. On the Fortescue River are miles of magnificent pools of permanent water, and the surrounding country appears suitable to the requirements of the bird. Despite the fact that it must have its daily drink, it prefers to live in the hot, rocky defiles of the Hamersley Ranges, fifteen miles away, where springs are few and far between. In like manner, I have seen but a single example on the Coongan River, and not one on the Nullagine. Yet I found several parties with their playgrounds in the hot and arid country of the east Murchison, where permanent surface water is very scarce.

In the north-west proper Pigeons and Doves are a feature of the avifauna, the little Red-plumed Rock Pigeon (*L. ferruginea*) being especially common. It favours inland rather than coastal country and is nearly always associated with *Triodia,* the so-called spinifex. Yet the presence of this grass does not of necessity denote the presence of the bird, for I saw nothing of it in such a favourable locality as the Oscar Ranges in the West Kimberley, where *Triodia* is plentiful. Pigeons all require plenty of water, and the absence of this species from the Fitzroy country is the more remarkable as water is far more plentiful in the West Kimberley than in the north-west proper.

I must now briefly refer to some of the smaller birds. The distribution of the long-lost Black-and-white Wren (*Malurus leucopterus*) is amongst the most remarkable. It is confined to two fairly large islands over four hundred miles apart in a direct line. The first—Barrow Island—is about twenty miles from the mouth of the Ashburton River on the adjacent mainland, and the second—the historic Dirk Hartog Island—is separated from Edel Land by a strait only a mile in width. On the mainland at both localities the Blue-and-white Wren is fairly common. Whether to consider the black and white form a survival of a once common species on the mainland or a new species evolved by isolation is difficult to decide, for both theories present difficulties. If the Blue-and-white Wren on the adjacent coast-line showed any tendency to a darker phase of plumage the problem would be easier of solution, but all I have seen have been of the normal type. On the other hand, specimens of the Black-and-white Wren I examined on Dirk Hartog Island showed distinct traces of blue feathers, and Mr. Tom Carter records the same fact. If this is not due to an occasional intercross with blue and white birds from the closely situated mainland, then it rather points to the Black-and-white Wren being the newer species. I regard the Blue-and-white Wren (*M. cyanotus*) as one of our most remarkable little birds from a distributional point of view. Its head-quarters in this State are around the vast salt-lakes of the dry interior, where the intense heat of summer is not mitigated by the presence of fresh surface water. Yet this little bird is quite plentiful amongst the extensive tracts of samphires. It can equally well endure the bitter cold nights of the Nullarbor Plain, and is quite at home in the zone of a twenty-inch rainfall. It is one of the smallest birds we have. How small it is can be realized when a brood of bob-tailed young pop out of a nest.

There are some interesting facts to record concerning the distribution of the Splendid Blue Wren (*M. splendens*). It is a south-western species occurring from Geraldton eastwards nearly to Yalgoo, and along the south coast to the Phillips River and perhaps still further. In addition, there are isolated colonies near Daveyhurst, north of Coolgardie, and as far out as Wiluna, on the east Murchison; possibly there are others yet to be discovered. This seems to point to a much wider range in the long-ago.

The Blue-breasted Wren (*Malurus pulcherrimus*), has a more limited northward range. It is fairly common in the restricted area of the Wongan hills, and I feel sure I saw it further afield near Arrino. To the south I have not met with it beyond the Stirling Ranges. But to the eastward I obtained a few specimens away out in the Norseman country. Mr. Edwin Ashby records a single example procured still further east on the Eyre Peninsular, South Australia. There can be no mistaking this species when seen at close quarters. The breast is intense indigo-blue in all lights.

The Red-winged Wren (*Malurus elegans*) has the most limited range of all our western species. It hugs the coastal districts, where it lives amongst the aquatic vegetation of swamps and streams. I do not think it occurs much further north than the latitude of Perth.

In comparison with eastern Australia, the west is poor in Finches, except in the Kimberley provinces. Outside of the latter area I have only met with four species in all my wanderings. Of these the Star Finch (*Bathilda ruficauda*), I have always found rather local and uncommon. The Painted Finch (*Emblema picta*), is abundant enough, but it loves water in the vicinity of rocky ranges. It might well have been named the Mountain Finch. The Chestnut-eared or Zebra Finch (*T. castanotis*), has a wider distribution and is more numerous than all the others put together. Despite the necessity of fresh water it seems to actually prefer the hot dry interior, for it is commoner there than in more favoured localities in the south-west. Possibly the opening up of the interior by mining and for pastoral purposes, with the accompaniment of dams and wells, has been to the advantage of this little Finch, and has enabled it to tide over periods of drought, to which it would otherwise have succumbed.

I must conclude with a brief reference to three other species which I think have always had but a limited range in the west. These are the Noisy Scrub-Bird (*Atrichornis clamosa*), the Western Bristle-Bird (*Dasyornis longirostris*), and the Western Ground-Parrot (*Pezoporus wallicus*). Though the two first-named may still exist, they have long been driven from the haunts where they were first discovered. An old resident of Albany told me that the Noisy Scrub-Bird could at one time be heard along the Perth Road near the town, and that the late George Masters procured the Bristle-Bird on the shores of the inner harbour. The Western Ground-Parrot still clings to its old haunts, despite periodical bush fires. It is to the latter cause I attributed the final disappearance of a pair of Bristle-Birds I had watched for several seasons. I have reasons, however, for thinking this bird still exists in the little-known country to the eastward of Albany.

The south-coastal strip is quite remarkable for the absence of such widely diffused genera as *Gymnorhina, Cracticus* and *Meliphaga,* but there is an isolated colony of *Pomatostomus* living in the Denmark forests and further west.

I do not pretend that this paper deals exhaustively with my subject. In a huge State like Western Australia much remains to be done in working out problems of distribution. Unfortunately observers are few and just now appear to be confined to the south-west. I predict some pleasant surprises when the out-back country becomes better known.

Reactions Between Birds and Plants.

By O. H. SARGENT, Perth.

THE connection between the bird and the tree it rests or nests upon is seldom, if ever, obvious. All birds in the last analysis owe their existence to plants: it cannot too often be emphasized that vegetation is the living foundation of all life. Such birds as do not directly derive their nourishment from leaves, flowers, fruits or seeds, prey upon other creatures which in turn prey upon plants. Brightest feather and sweetest song trace their origin to the lowly, unattractive green leaf! Conversely, many plants owe their existence to birds. Observations extending over about 25 years form the basis of the present paper, which deals with the nexus from the botanic view-point under two main heads: benefits received and injuries suffered by plants from birds.

A conspicuous and noteworthy service performed by birds for our indigenous plants is the pollination of flowers. In order that a full supply of vigorous seed shall be produced it is desirable in most cases, and necessary in many, that pollen should be transferred from the anthers of one flower to the stigma of another upon a separate plant. Various agents are employed: water, wind, insects, animals, birds; and so far as Western Australian wild plants are concerned, the present author strongly inclines to the opinion that by far the most important of these are birds.

The well-known "pea" blossom is a typical bee flower; and the majority of our very numerous native pea family plants are probably pollinated by bees; but three certainly, and others probably, require and receive the attentions of birds. *Templetonia retusa,* R.Br., is a shrub plentiful enough on the coastal limestone ridges. It bears about July a profuse load of yellow-eyed red blossoms. The flowers are remarkably narrow and long, as the standard is bent back till it continues the line of the keel. At the junction of standard and keel a narrow slit leads to the flower's store of nectar. The nectar-seeking bird perches on the stem either above or below the blossom, as best suits its mood or convenience, and forcing its beak into the slit for a sip of sweetness, causes the keel to open and expose (if the flower be newly opened) the pollen-laden anthers. Almost inevitably either the throat feathers or those of the crown of the head (according to the bird's position), will be dusted with pollen. Such a bird next visiting an older flower whose anthers are empty and withered will probably have some of the golden grains removed from its feathers by the now mature stigma.

Sturt's Desert Pea (*Clianthus dampieri,* A. Cunn.), is a prominent feature of the dry interior of this continent. Its gorgeous scarlet, black-eyed blossoms are closely similar in build to those of *Templetonia retusa.* In the wild and in cultivation birds visit the flowers for nectar and transfer pollen from anthers to stigmas. *Crotalaria cunninghami,* R.Br., is indigenous to the north-west. It bears long racemes of green blossoms, having a striking resemblance to birds in flight. The keel petals of the flower are rolled to form a cone, with a minute opening at its apex through which pollen is forced when the nectar-channel is probed. When the pollen supply is exhausted the stigma emerges through the same orifice. Mr. F. Lawson Whitlock reports having seen birds busy on these flowers.

The size, shape and rigidity of the above-named three are suggestive of bird-pollination; but it was distinctly surprising when a chain of evidence of his own forging constrained the author to regard birds as pollinators of a species of wattle (*Acacia celastrifolia,* Benth.). In this species a saucer-like gland on the edge of the phyllode (leaf-organ) secretes a sweet fluid at flowering time. This attracts many flying insects, but stands so far from the fluffy blossoms that no insect ever returns any service for the feast. Until by lucky chance *Zosterops australasiæ* were seen busy on the bushes, birds were not thought of as pollinators. No bird can sip nectar *repeatedly* without performing a marriage-act for the flowers. Whether birds perform a similar service for other wattles is unknown; but the tassel-like blossoms of the nearly related *Albizzia lophantha,* Benth. are certainly visited and probably pollinated by birds.

Equally surprising was the conviction gradually forced upon the author that honey-eating birds are "official" pollinators to the genus *Eucalyptus.* The term "official" was suggested by the author "to describe that visitor which seems specially connected with a flower. Others may be efficient pollinators; but one appears to be *the* one for whom the blossom is 'intended'." (*Annals of Botany,* Vol. xxxii, No. cxxvi, April, 1918.)

That birds should pollinate the enormous flower of muttlegar (*Eucalyptus macrocarpa,* Hook.) seems only natural; but it requires much evidence to persuade one to associate birds with the tiny blossoms of such species as York gum (*Euc. loxophleba,* Benth.). Only field observations can convince; but some points of fitness for the attentions of birds may be noted in the structure of the flowers. The parts are rigid, and pollen does not readily leave the anthers. While there seems nothing to compel any insect-seeking nectar to brush stigma as well as anthers, as the small flowers are borne in clusters it would be difficult for a bird to fail to do so. The author has found no trace of pollen on the body of any insect-visitor of "gum" blossoms so far examined. As time rolls on evidence is steadily accumulating that birds are the chief, if not the only, efficient-pollinators throughout the genus. If this be proved as a fact, it places Honeyeaters in the front rank of economic importance, for the continuance of our natural forests would be dependent upon them. If the eucalypt forests were to perish utterly the birds would merely turn for sustenance to flowers of other plants; but if honey-eating birds became extinct the eucalypts would probably speedily follow them.

However that may be, there is no doubt these birds have played a very important part in moulding the present face of nature in this fair land of ours. The glorious "desert pea" and the beautiful *Templetonia retusa* could scarcely exist in the absence of bird-pollinators. Such a blossom as the quaint and highly characteristic "kangaroo paw" is inconceivable apart from honey-eating birds. To them also we owe the stately banksias, and probably some of the brilliant epacrids (native heaths), and beautiful eremophilas, to mention only a few striking cases. Birds are aggressive, and when they find honey-bearing flowers unsuited to their attentions they do not hesitate to tear the corollas to obtain the sweet fluid, thereby rendering the flowers unfit for pollination by insects. The blossoms of arbutus (Irish strawberry) and snapdragon often suffer at the beaks of birds. It seems, indeed, highly probable that unless a flower is nectarless (or nearly so), or very small, or in some manner inaccessible to birds, it *must* serve their needs if the plant species is to survive.

Conformation to bird demands has probably aided in the struggle for existence in arid places, because a very economical simplicity of structure usually suffices. Petals are often reduced to mere scales, and sometimes (as in *Eucalyptus*) are entirely absent. There is no need for any flower-part to serve as a landing-stage such as insects require; the birds perch upon some part of the plant to sip the nectar of its flowers. In *Banksia* and its allies the floral envelope is dry and the tiny stamens are withered when the flower opens; so that the blossom consists essentially of a slender, rigid bristle bearing the pollen discharged from the stamens in the bud stage at its apex. Later, when the pollen has gone, a tiny pin-point stigma develops upon the extreme tip.

When contemplating a single organism, plant or bird, one may perhaps quite easily suppose that it always was as it now is; but when we find birds excellently fitted for the pollination of flowers, and flowers well suited for the attentions of those birds, the suggestion of development, co-adaptation, is strong, *especially when the fit is not quite perfect.* A bee must always sip nectar from a pea blossom in the same posture; the fit is exact. The bee has been a pollinator of such flowers from very ancient times; the bird is a mere novice in comparison. In the case of *Templetonia* flowers, a bird with pollen-dusted throat may brush a pollen-needing stigma against the crown of its head to the flower's loss. However, *Templetonia* blossoms are not all carried the same way: some seem up side down. If the yellow eye is a honey-guide, and the bird (as is probable), has any tendency to probe the flower always in the same way in relation to the "eye," this various placing of the flowers may be regarded as a response to the vagaries of the birds in perching sometimes above, and sometimes below the flower cluster. In any case, the less perfect fit between newer pollinator and flower is a noteworthy fact.

The genus *Eucalyptus* seems to be in a transition stage. Probably there is no species, no matter how small its flowers, that is not at least sometimes pollinated by birds, though perhaps in some cases insects may be efficient pollinators. The large flowers of such species as "muttlegar," however, could be pollinated only by birds, though "unbidden" insect guests also sip their nectar. In the structure of the flowers of other genera of the *Eucalyptus* family (*Myrtaceae*), there is strong suggestion of an originally insect-pollinated flower adapting itself to bird-pollinators. In the genus *Melaleuca,* for example, the smaller-flowered species are probably dependent upon insects; but those with larger, long-stamened flowers are almost certainly pollinated by birds. The flowers of the nearly related genus *Beaufortia* show a greater degree of adaptation for making use of bird-visitors: the anthers are rigidly attached to the filaments, which suggests fitness for rougher "handling" than the loosely-attached anthers of *Melaleuca.* Birds certainly visit the flowers of *Beaufortia sparsa,* R. Br., and *B. decussata,* R. Br. These and the flowers of several species of *Calothamnus* have their stamens arranged in groups or bundles, equally spaced round the slender style, whose very tiny tip alone is stigmatic. Unless a wide patch of feathers is liberally pollen-dusted it would be easy for so small a stigma to miss pollination.

One group (five species) of the genus *Calothamnus* has flowers cunningly devised to compel the bird-guest to serve as well as feast. Of these the only species known to the author, *C. sanguineus,* Labill., is freely visited by birds. The flowers are bright red in colour. Two of the four stamen-bundles (the upper ones), unite to form a structure strongly reminiscent of a "kangaroo paw" blossom, gracefully curved towards the ground. The two side "bundles" consist of a solitary stamen each. Now, it is scarcely possible for a bird to take nectar without its crown rubbing the "paw" anthers and its cheeks the solitaries. The style is curved, and normally the stigma should rub the bird's crown; but sometimes through displacement it rubs a cheek.

One more example of increasing specialization must be mentioned. The flowers of *Banksia,* spp., are arranged in immense cones, upon the top of which the bird perches, and, bending down for nectar, brushes many style-tips at once. *Dryandra* is very closely related to *Banksia.* The flowers of *D. floribunda,* R. Br., are borne on an almost flat disk, and the heads roughly resemble a paint-brush; a nectar-seeking bird must brush *most* of the style tips. *Dryandra nivea*, R. Br., bears its blossoms round the edge of the disk, so that disk (receptacle), and blossoms together form a cup-like structure. The style-tips are directed inwards round the rim of this "cup," so that a bird, seeking the nectar (nauseously heavy-odoured), which pours from the blossoms on to the bottom of the "cup," must needs rub every style-tip. Excellent as its pollination mechanism undoubtedly is, *Dryandra nivea* is a very "shy" seeder. The reason why is quite unknown to the author, and a catalogue of possible reasons would be out of place here. The very excellence of the device suggests some difficulty in securing a suitable pollinator.

In its early days bird-pollination was probably of immense advantage to the few species adapted to make use of birds. Powerful and active messengers carried pollen in abundance from flower to flower: there was competition between birds for flowers. Birds are less numerous than insects; and as ornithophilous plants increased in numbers, both of kinds and of individuals, competition between plants for the attentions of birds grew steadily keener. The blossoms of *Dryandra nivea* and other specialized blossoms mentioned above, provide evidence of how keen the competition has recently grown. Further evidence may be found in the fact that a few species of *Eucalyptus* bear red flowers; and some white-flowered species vary to red at times. It is certain that "civilization" has made the struggle much more strenuous.

Some years ago the author habitually slept in a verandah almost under the shade of a stately pear-tree; and in spring, when the blossoms were unfolding, he observed Silvereyes sipping dew-drops from the leaves soon after dawn. Occasionally the cheery little birds would sip the sweeter moisture of a blossom. Irresistibly a possible origin of the honey-eating habit, with all its profound consequences to bird and plant, suggested itself; the discovery, in the far-distant past, of a glistening droplet in the centre of a flower perhaps revealed to some thirsty bird that nectar has desirable properties not shared by dew or rain. This would happen not once only, but many times, to many birds. Some would get the habit—and the habit has stuck. Silvereyes, which sip nectar from, and doubtless pollinate, the flowers of *Adenanthos cuneata*, Labill., often in the early morning neglect the blossoms and take dew-drops from the leaves of the shrub. After rain a droplet of moisture is often left at the "eye" of a *Templetonia retusa* flower. Various Honey-eaters gently sip this fluid. How easy to probe a little after the rain-drop, and find sweet nectar down below! In the Westralian bush, if anywhere, we are "in the morning of the times," and it is not impossible that illuminating ancient habits have persisted, even when ancient structure has vanished.

Very many flowers habitually visited by birds are *red*; but Honeyeaters do not neglect blossoms of other hue, though the author has never seen a brown or blue flower visited. For some years *Dryandra carduacea* (creamy flowers), *Acacia celastrifolia* (yellow), and *Calothamnus sanguineus* (scarlet), were frequently observed flowering simultaneously in the same locality, and competing for the attentions of identical birds. Neither species seemed favoured more than the others, though the birds gave attention to one species one day and another the next. Constrained by observations, the present author cannot regard colour as an *attraction* but simply as a signal —the "bush" proclaiming the "good wine" within. The real attraction for insect or bird is the feast of nectar provided. Even greenish flowers possessing nectar (or its equivalent), attract their full share of visitors; but of course in many cases where it is possessed the "signal" of colour is of very great value.

As distributers of seeds birds play a part of some importance. Wading birds frequently, and perhaps most birds occasionally, carry seeds long distances in mud attached to their feet. Probably the sporocarps (almost the equivalent of seeds), of "nardoo" (*Marsilea* spp.) have been distributed in this way. Our native mistletoes (*Loranthus* spp.), are doubly ornithophilous. The flowers of *L. preissii*, Miq., are freely visited by various Honeyeaters, for whose attentions they seem well fitted. At a later stage their tough-skinned, pearly berries are much relished by Silvereyes (and probably other birds), for their slimy contents. The naked embryo in the centre, however, is a hard morsel, not pleasant to swallow and not easy to reject. Often it adheres to the beak, from which it is wiped upon some convenient twig. Here, if all conditions favour, it germinates, and duly develops into a parasitic shrub. The fruit of *Persoonia quinquenervis*, Hook., a small tree of the *Banksia* family is a hard nut coated with a thin layer of soft, tough, nutty-flavoured flesh enclosed in a firm skin. Small boys, in spite of its scantiness, find the flesh enjoyable and seek the "coral berries" assiduously. The Twenty-eight Parrot also has a liking for the flesh. This bird skilfully rejects the outer skin, but often, if not always, it swallows the "stone," which in every probability is dropped in a germinable state far distant from the parent-tree. The seeds of the "zamia palm" (*Macrozamia fraseri*, Miq.), are coated with a layer of oily, red flesh, which is relished by Parrots, but these birds seldom, if ever, carry the large seed far. Emus, so it is said, swallow the seeds (which are often larger than a walnut) whole. It has, indeed, been alleged that the seed will not germinate until it has "passed through" an Emu. While it is probable that the seed is germinable after it has run the gauntlet of an Emu's alimentary canal, it is quite certain that it will germinate without undergoing such an ordeal.

A service of incalculable importance rendered by birds to plants, the daily destruction of multitudes of insect enemies of plant life, must for lack of personal observations be passed over with this mere mention.

Turning now to injuries inflicted, the author's notes are few. Judging from descriptions, *Eucalyptus erythrocorys,* F. Muell., is a very beautiful species; but the author has long waited promised specimens of buds and blossoms because "the buds are all destroyed by Parrots before they are fully developed"—a distinctly ironic fate, because other birds are almost certainly "official" pollinators. Black Cockatoos (*Calyptorhynchus banksi*) break open the nearly-mature capsules and devour the ripening seeds of marri (*Euc. calophylla,* R.Br.). Many birds consume and digest the ripe seeds of almost all kinds of plants, and this from the botanic point of view must be deemed an injury. On the other hand, failure to digest the seed consumed sometimes results in injury to other plants and to mankind.

Silvereyes and other frugivores deposit in their droppings germinable seeds of boxthorn and of blackberry. So these noxious weeds are spread, displacing other plants and entailing serious economic loss. It is quite likely that other weeds are spread in a similar manner. The fact that seeds often do pass through the digestive apparatus of birds quite uninjured, and sometimes perhaps even better fitted for germination, needs to be carefully noted by ornithologists. The finding of seeds of noxious weeds in the crop of a bird is not sufficient proof that the bird is a benefactor; the depositing of one fertile seed in a new pasture may easily over-balance the good done by the destruction of the rest devoured. Ignoring economic considerations, however, the injuries suffered by plants seem small indeed, compared with the many benefits they receive from their feathered friends.

APPENDIX.

The birds mentioned hereunder have been observed upon the flowers of the plants listed under their name, either by the author personally or by others acknowledged by name in each instance:—

Glossopsitta porphyrocephala (Purple-crowned Lorikeet), on *Eucalyptus redunca, E. accedens, E. calophylla* (D. L. Serventy, observer), *E.* spp. (mallees) (D. L. Serventy, observer).

Artamus melanops (Black-faced Wood-Swallow), on *Xanthorrhœa preissii* (D. L. Serventy, observer), *Artamus personatus* (Masked Wood-Swallow), on *Brachysema daviesioides* (F. L. Whitlock, observer).

Zosterops australasiæ (Western Silvereye), on *Anigozanthus manglesii* (D. L. Serventy, observer), *Adenanthos cuneata, Hakea preissii, Loranthus preissii, Templetonia retusa* (flower over-large for the bird), *Erythrina* sp. (cultivated), *Albizzia lophantha, Acacia celastrifolia, Calothamnus sanguineus, Eucalyptus ficifolia* (in cultivation).

Gliciphila indistincta (Brown Honeyeater), on *Xanthorrhœa preissii, Anogozanthus bicolor* (P. H. and L. O. Sargent, observers), *Adenanthos cygnorum, Banksia menziesii, B. serrata, Loranthus preissii, Nuytsia floribunda, Templetonia retusa, Clianthus dampieri* (F. L. Whitlock, observer), *Crotalaria cunninghami* (F. L. Whitlock, observer), *Calothamnus sanguineus, Beaufortia sparsa, Eucalyptus calophylla, E. macrocarpa* (in cultivation), *E. loxophleba,* garden "larkspur."

Gliciphila melanops (Tawny-crowned Honeyeater), on *Lambertia multiflora* (D. L. Serventy, observer), *Dryandra armata* (D. L. Serventy, observer).

Melithreptus lunatus (White-naped Honeyeater), on *Banksia menziesii* and *B. serrata.*

Meliphaga ornata (Yellow-plumed Honeyeater), on *Dryandra floribunda, D. carduacea, Acacia celastrifolia, Calothamnus sanguineus, Astroloma divaricatum* (P. H. and L. O. Sargent, observers).

Meliphaga virescens (Singing Honeyeater), on *Xanthorrhœa preissii* (D. L. Serventy, observer), *Crotalaria cunninghami* (F. L. Whitlock, observer).

Meliornis niger (White-cheeked Honeyeater), on *Banksia* sp., *Beaufortia sparsa.*

Myzantha obscura (Dusky Miner), on *Banksia prionotes.*

Myzantha flavigula (Yellow-throated Miner), on *Grevillea excelsior.*

Acanthorhynchus superciliosus (Western Spinebill), on *Anigozanthus manglesii* (D. L. Serventy and F. L. Whitlock, observers), *Banksia* spp. (F. L. Whitlock and D. L. Serventy, observers), *Hardenbergia comptoniana* (D. L. Serventy, observer), fuchsia and "geranium" (F. L. Whitlock, observer).

Anthochæra carunculata (Red Wattle-Bird), on *Xanthorrhœa drummondii* and *Xan. preissii, Anigozanthus manglesii* (D. L. Serventy, observer), *Grevillea excelsior, G. pritzelii, Banksia menziesii, B. prionotes, B. grandis, Dryandra floribunda, Templetonia retusa, Clianthus dampieri* (in cultivation), *Erythrina* sp. (in cultivation), "Nasturtium" and "Snapdragon" (Miss I. Sargent, observer).

NOTES.

The records of Wood-Swallows as Honeyeaters are of interest as perhaps supporting an alternative or supplementary origin of flower-visiting suggested to the author by Mr. F. L. Whitlock. These birds, though brush-tongued, are insectivorous (as are the "Honeyeaters" proper). Inspecting flowers for insects, nectar might be taken, and a taste for it acquired. *Brachysema daviesioides* is a small, much-branched, leafless, spiny shrub. Its flowers, borne close to the ground, in colour, build and size are rather like those of *Templetonia retusa.* Mr. Whitlock writes: "I found the plant on a large sand-plain 30 miles west of Wiluna, E. Murchison. Wood-Swallows were flattening themselves on the ground, and even lying on their sides, to get at the nectar (and insects ?) within the flowers. Both *A. personatus* and *A. superciliosus* were there. I shot two of the latter to be certain. Their foreheads were thick with pollen." This note reached the author after this paper was written.

Acacia pulchella is also frequented by Silvereyes at the flowering season, but it is not certain that the flowers are touched.

The record of a Spinebill in association with *Hardenbergia* is of special interest. The flowers (pea-shaped), are deep *blue,* and are borne in long racemes. On account of their small size—the keel is only about 10 mm. long—it seems improbable that any bird could be an efficient pollinator.

In respect of the Red Wattle-Bird's association with *Grevillea pritzelii,* it should be noted that the small flowers, set in short racemes, are, except for their slender deep purple ("black") styles, grey-green (isochromous with the foliage), and to the human eye are practically invisible ten feet away. This Wattle-Bird, seen attending *Dryandra floribunda,* furnished the author's earliest note of permanent scientific value; under date July 3, 1898, he recorded: "'Barking Birds' feed on 'hollys'; driving the beak into the flower, the bird sucks something out."

Silvereyes and Black-faced Cuckoo-Shrikes have been observed feeding on the berries of box-thorn (*Lycium campanulatum*).

The author desires to acknowledge valuable assistance by Mr. D. L. Serventy in naming most of the birds in the above list.

Bird Observations in Bass Strait.

By Edwin Ashby, M.B.O.U., C.F.A.O.U., Adelaide.

In October, 1926, Mr. A. J. Campbell and the writer visited the famous Mutton-Bird (*Puffinus tenuirostris*) rookery, at Cape Wollomai, on Phillip Island, Victoria. The object of the visit was to assist in having that rookery made a national reserve. Staying at Woolomai House, the residence of our host (Mr. J. B. Cleland), was a Mr. John Burgess, the skipper of a ketch that is engaged in the cray-fish industry among the Bass Strait Islands. Mr. Burgess has spent most of his life amongst these islands, and was able to furnish us with a detailed account of the bird rookeries throughout that area.

Fairy Prion (*Pachytila turtur*), ? sp.—On Albatross Is., 6 miles west of Hunter Is., estimated 2,000 nesting pairs; Hunter Group, on rock 200 yds. west of Three Hummock Is.; Penguin Is., about 40 nests; Passage Is. and Bird Is., small rookeries on each; Moncoeur Is., 8 miles S.E. of Wilson's Promontory; Sentinel Is., off the N.W. end of Flinders Is., small rookery, the only nesting-place in the Flinders Group; Furneaux Group, nesting on most of the small islands, notably Isabel Is.; only small rookeries in this group; Mourode Is. (?), 7 miles south of St. Helen's Point, a large rookery.

White-faced Storm-Petrel (*Pelagodroma marina*).—Albatross Is.; Hunter Group, on a reef north of Stack Is.; Stackhouse Is., off Babel Is. (? Flinders Group); Furneaux Group: Sentinel Is., Middle Is. of the Pascoes, a small rookery. The only rookery on the mainland of Tasmania known to Mr. Burgess is Crappie Point, opposite Waterhouse Is., 20 miles from Gladstone.

Cape Barren Goose (*Cereopsis novæ-hollandiæ*).—Anser Group, off Wilson's Promontory: Wattle Is.; Hogan Group: Long Is.; Kent Group: North East Is.; Furneaux Group: all small islands of this group; Kangaroo Is., seen 60 to 70 nests in this island; Goose Is., seen 10 to 16 nests in this island; Armstrong Sound: Forsyth Is., Passage Is.

Australian Gannet (*Sula serrator*).—Cat Is., off Babel Is.

Australian Pelican (*Pelecanus conspicillatus*).—Penguin Is., in the Hunter Group.

White-capped Albatross (*Diomedea cauta*).—Albatross Is., 6 miles west of Hunter Is.

In addition to Prions, Storm-Petrels and Albatrosses Mr. Burgess has seen, on Albatross Island (which is 1⅛ mile long and 125 feet high), the following birds breeding: White-

breasted Cormorant (*Phalacrocorax fuscescens*), Silver Gull (*Larus novæ-hollandiæ*), Pacific Gull (*Gabianus pacificus*), Wedge-tailed Eagle (*Uroætus audax*), Peregrine Falcon (*Falco peregrinus*), Australian Crow (*Corvus coronoides*) (*cecilæ*).

Mr. A. J. Campbell took particulars of all the Mutton-Bird rookeries, so these are not included in this paper but will be published later by Mr. Campbell.

MIGRATION OF BIRDS ACROSS BASS STRAIT.

In addition to data relating to bird-rookeries on islands in Bass Strait, Mr. Burgess supplied me with some interesting notes on the migration of birds across the Strait.

Swamp-Harriers (*Circus approximans*), he has often seen flying both ways across the Strait.

Robins and Silvereyes are often observed when the ketch is returning to the Victorian coast with a load of crayfish from the islands; they are always seen at dawn, and chiefly 10 or 12 miles off the Victorian coast, coming from the direction of Tasmania. These occurrences are very common and observations extend from Wilson's Promontory to Cape Otway. Silvereyes he has at times seen in hundreds near the Victorian coast and at other times out of sight of land, but always heading for Victoria. The Silvereye will be the Grey-backed Silvereye (*Zosterops halmaturina*). The Robins that were identified were the Flame-breasted Robin (*Petroica phœnicea*). These birds usually flying singly. They only settle on board the ketch when in a fog. On the north coast of Tasmania Mr. Burgess has never seen either Robins or Silvereyes taking off from the land or coming in from the sea. He expressed the opinion that the birds coming from Victoria reach the Tasmanian coast before dawn and those making the northward trip take off after dark.

He asserts that Quail always fly across the Strait in the dark. Once he saw one flying in the direction of Victoria, 30 miles from land, half-way between Curtis Is. and Pyramid Rock. He has also seen Black Swan (*Chenopis atrata*), start off from the north of Flinders Is., and make a direct course for the Gippsland Lakes. His father used to have the lease of Three Hummocks Is., which is distant from King Is. 40 miles, and he well remembers seeing there three examples of the Gang-gang Cockatoo (*Callocephalon fimbriatum*).

Birds of the Nullarbor Plain.*

By A. S. Le Souef, C.M.Z.S., Sydney.

The Nullarbor Plain is a vast expanse of level territory lying inland from the Australian Bight. It stretches 400 miles from east to west and about the same distance north and south, covering approximately 100,000 square miles. The underlying strata is limestone, and this is covered with a thin layer of red sandy loam, which supports a characteristic growth of salt-bush and blue-bush, or a waving carpet of wild flowers. A special feature is offered by low depressions, which by conserving moisture, have permitted a few shrubs to gain a foothold. Apart from these only an occasional acacia or small group of weeping pittosporums relieve the otherwise featureless landscape. On the edges of the plain little groups of trees by acting as a windbreak or catchment for soil have resulted in the piling up of low, loamy ridges. Now and again the limestone comes to the surface in masses of jagged stone, like pressure ridges in an ice-field.

Perhaps the most interesting features of the plain are the "blow-holes." These are perpendicular openings in the surface, which after going down for about ten to fifteen feet, branch out into shallow caves, the sides of which often show a coral-like formation owing to the action of water on limestone. The origin of these holes was rather puzzling, but it would appear that they have been gradually dissolved out by water, for one finds pot-holes and natural wells from a few inches to several feet in depth, which I took to be blow-holes in process of formation. The word "blow-hole" arises from the fact that a current of air is usually going in or coming out; this is probably induced by the cold subterranean air coming out to join the sun-heated atmosphere.

It is rather surprising to find that this country, semi-arid in character, is teeming with wild life. In good seasons mammals, birds, reptiles and insects are in extraordinary numbers. Never in any part of Australia, except in selected breeding places, have I seen living things so numerous as they were at Rawlinna, on the western edge of the plain, last November. The song of Larks filled the air, brilliant Crimson and Orange Chats decorated the bushes, while on every hand one's attention was directed to some more or less interesting species. My notes are as follow:

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* This paper should be read in conjunction with earlier *Emu* articles on Nullarbor bird-life—C. G. Gibson, IX, p. 71 (1909), S. A. White, XVIII, pp. 189-198 (1919), and F. L. Whitlock, XXI, 170-187 (1922). White gives photographs of the "blow-holes" inhabited by the Cave Owls.—Editor.

Little Quail (*Turnix velox*).—Frequently flushed from among white everlastings. Young were on the wing.

Australian Dotterel (*Peltohyas australis*).—Locally called "Snipe" and counted as one of the game birds. They have the characteristic habit of running a few yards and then stopping; they do not readily take wing.

Australian Bustard (*Eupodotis australis*).—Several male birds noted stalking among the blue-bush and salt-bush. On a previous occasion hen birds only were seen in the scrub near Ooldea, so it would seem that the sexes separate after mating.

Little Falcon (*Falco longipennis*).—A Little Falcon, which evidently had a nest in the vicinity, often followed us out on the plain, flying at a considerable height.

Brown Hawk (*Falco berigora*).—Very common on the plain, and frequently seen sitting on telegraph posts.

Kestrel (*Falco cenchroides*).—Kestrels were numerous. It is interesting to note that on the plain they seem to nest only in the blowholes. Four nests were found in these situations. In one case the eggs, five in number, were on a shelf of rock ten feet from the surface. The hole was perpendicular and about four feet in diameter, and one wonders how the bird got in or out. Perhaps its hovering habits helped it to rise in the narrow space.

Cave Owl (*Tyto* sp. ?).—Throughout the plain, living only in the blow-holes, are beautiful Owls, with pale-fawn-spotted backs and pure white breasts. Three were seen alive in the Perth Zoo. They are larger than *T. alba*, but did not seen so robust as *T. novæ-hollandiæ*, and the specimens show no variation.

Pink Cockatoo (*Kakatoe leadbeateri*).—Several single birds or pairs were noted from the train among the timbered sand-hills east of Ooldea.

Welcome Swallow (*Hirundo neoxena*).—Seen in numbers at practically every railway station along the line.

Hooded Robin (*Melanodryas cucullata*).—These Robins were very plentiful, and from the number of immature specimens about, it was evident that they had finished nesting.

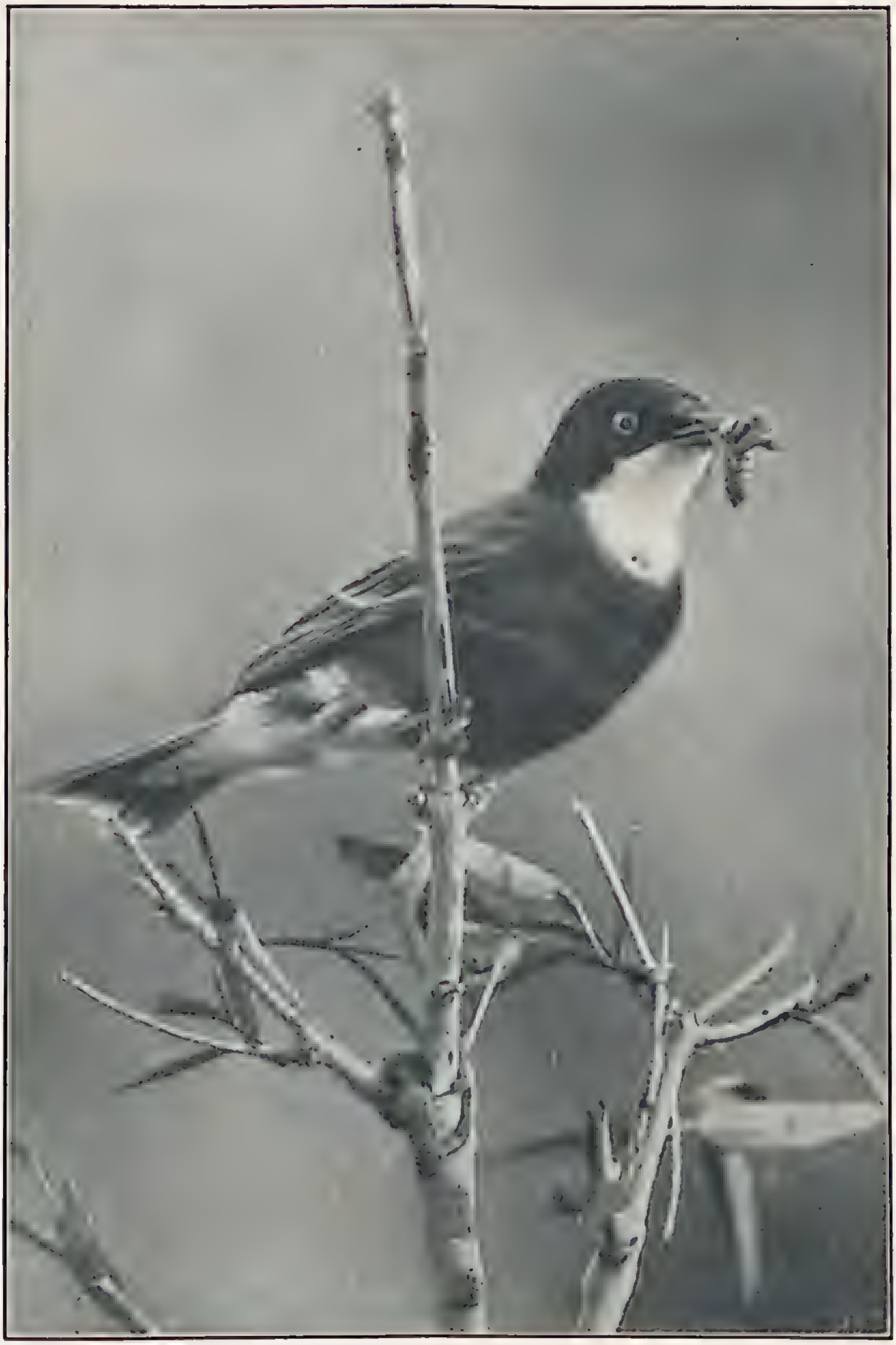
Crested Bell-Bird (*Oreoica gutturalis*).—A clear, high-pitched song often denoted the presence of the Crested Bell-Bird, but its habit of staying quite still in a bush made it difficult to locate.

Nullarbor Quail-Thrush (*Cinclosoma alisteri*).—Every few hundred yards one would be sure of seeing these birds dodging away among the bushes. Sometimes they would dart under cover and remain hidden, but if startled they would rise and fly fifty yards or so over the plain at a fair height from the ground. Young were on the wing, and their colour harmonized perfectly with the reddish soil.

White-browed Babbler (*Pomotostomus superciliosus*).—Tameness and curiosity characterized the Babblers, flocks of which were often met with in the drongas.

Crimson Chat (*Epthianura tricolor*).—These crimson gems, sitting on the grey bushes, were quite a feature of the plain. They were very numerous. I journeyed ten miles to the north and seventeen miles south of the line, and they were evenly distributed all the way. Young were on the wing.

Orange Chat (*Epthianura aurifrons*).—Only a few of this species were noted. They were quiet and inconspicuous compared with the last-named.



Crimson Chat (♂) About to Feed Young.

Photo. by O. Webb.

NATIONAL MUSEUM MELBOURNE

Eastern Whiteface (*Aphelocephala leucopsis*).—The dumpy, round-headed Whitefaces seemed to be in nearly every shrub. They were in groups of four or five, and had just finished nesting.

Redthroat (*Pyrrholæmus brunneus*).—A pleasing trill drew attention to the Redthroat, which was seen in the low bushes; it had somewhat the appearance and actions of a Wren.

Rufous Field-Wren (*Calamanthus campestris*).—Not uncommon, but very wary. On being disturbed they would quickly get out of sight in the undergrowth or fly swiftly away, and they could not be flushed again.

Brown Song-Lark (*Cinclorhampus cruralis*).—One was seldom out of sight or hearing of Song-Larks, though they were very wary, and seldom allowed an approach within fifty yards. The song, which is uttered while flying slowly at about a hundred feet from the ground, is not so loud nor so sustained as that of the eastern form. If alarmed they fly swiftly away, and often perch in bushes.

Blue-and-white Wren (*Malurus cyanotus*).—Not uncommon. Only two males were seen, but several groups of females. In no case did I see the two sexes together. The male when disturbed went straight away in a long flight, and was a most conspicuous objct; the females, however, were not at all timid. I followed bands of uncoloured birds for some time in the hope that they would be joined by males, but the latter were never in their vicinity.

Masked Wood-Swallow (*Artamus personatus*).—Practically every dronga had its complement of Masked Wood-Swallows, and there must have been many thousands in the vicinity of Rawlinna.

White-fronted Honeyeater (*Gliciphila albifrons*).—One only seen and obtained for identification.

Singing Honeyeater (*Meliphaga virescens*).—It was rather strange to find Honeyeaters in fair numbers where there were no honey-bearing flowers. This species, like many of its family, had an irregular, jerky flight.

Pipit (*Anthus australis*).—It apparently would not be easy to find open country in Australia where Pipits are not in evidence. Their little brown forms are common enough on the Nullarbor Plain.

Zebra Finch (*Tæniopygia castanotis*).—As far as I could ascertain, these were the only birds that found it necessary to come into the station regularly for water. Scattered flocks, consisting mostly of immature birds, were noted in the drongas.

Raven (*Corvus coronoides*).—Large flocks of Ravens were often noticed.

Naturalists generally will regret the illness of Mr. Harry Burrell, R.A.O.U., C.M.Z.Z., who was stricken down early in December while doing research work on the platypus in the Namoi River, N.S.W. At present (December 27), Mr. Burrell is recovering steadily in Famenoth Private Hospital, Randwick, Sydney.

The Ornithology of H. L. White.

By A. J. CAMPBELL, C.M.B.O.U., Melbourne.

ALLAN OCTAVIAN HUME was a member of the Indian Civil Service and crowned his official career as Secretary to the Government of India. During his residence in India (he was born and died in England), Hume devoted his spare time to ornithology, chiefly between the years 1862 and 1885. He was aided by many collectors, chiefly William Davison, and up to that time brought together the largest collection of ornithological material ever amassed by a private individual, and which Hume donated to the British Museum of Natural History. So important was the collection considered that Dr. Bowdler Sharpe, Chief of the Bird Department, was sent to India to pack and protect the specimens. The collection contained, besides bird-skins and numerous types, about 19,000 eggs. Dr. Sharpe stated that the collection was "one of the most splendid donations ever made to the nation, and added to the Museum the most complete collection of birds and eggs from the British Indian Empire, the world has ever seen" (see *Ibis,* 1885, p. 456).

History repeats itself. Hume of India has become, as it were, a "prototype" to Henry Luke White, of Belltrees, in Australia. In about the same time (or nearly 30 years), with the aid of reliable collectors and a liberal purse, White amassed, for an individual, the finest collection in Australian ornithological material, "the world has ever seen," with complete and careful data of same. The bird-skins (between 8,000 and 9,000) were given to the nation (through the National Museum, Melbourne), during his life-time. The magnificent and beautiful collection of about 12,000 eggs was a posthumous gift.

H. L. White was a born collector, or there would have been no such contributions to natural science, particularly to the ornithology of Australia. That he found time for interest in ornithology is somewhat marvellous, when one considers his exacting duties as senior partner of a large and influential pastoralists' firm. Australians will ever revere the name of Henry Luke White, not to mention the monument of material (for students and others), he has left behind, in the National Museum, Melbourne.

Here follows the Bibliography, in chief, of H. L. White:

(*a*) NEW AUSTRALIAN BIRDS.

New sub-species of Honeyeater (*Entomophila picta borealis*), from Northern Territory. *Emu,* XIII, p. 187.

New sub-species of Wren (*Malurus lamberti dawsonianus*), from Queensland. *Emu,* XVI, p. 69, with col. plate.

New Species of Honeyeater (*Meliphaga albilineata*). *Emu,* XVI, p. 165.

New sub-species of Scrub-Bird (*Atrichornis rufescens jacksoni*), from Queensland. *Emu*, XIX, pp. 257-8, with col. plate.

New sub-species of Whistler (*Pachycephala olivacea macphersonianus*), from Queensland. *Emu*, XIX, p. 273.

New species of Parrot (*Psephotus narethæ*), from Nullarbor Plains. *Emu*, XXI, pp. 81-3, with col. plate.

Two new sub-species from Northern Australia—*Gymnorhina tibicen eylandtensis* and *Geophaps scripta peninsulæ*. *Emu*, XXI, p. 163. [Some students believe the former a full species.—A.J.C.]

(*b*) NEW NESTS AND EGGS.

Descriptions of nests and eggs of *Pœcilodryas pulverulentus* and *Malurus dulcis*. *Emu*, X, pp. 132-4.

Nest and eggs of *Calamanthus montanellus*. *Emu*, X, p. 293.

Descriptions of new eggs—*Cracticus mentalis*, *Xanthotis filigera*, etc. *Emu*, X, pp. 339-40.

Description of eggs of *Ninox strenua*. *Emu*, XII, p. 21.

Notes on the Cassowary (*Casuarius australis*). *Emu*, XII, pp. 172-8, with 4 plates.

Descriptions of two new eggs—*Neositta leucoptera* and *Pezoporus flaviventris*. *Emu*, XIII, p. 186.

Descriptions of new eggs—*Colluricincla woodwardi*, *Amytornis woodwardi* (= *dorotheæ*), *Falcunculus whitei* and *Malurus coronatus*. *Emu*, XIV, p. 57.

Australian Cuckoos. *Emu*, XIV, pp. 144-54, with 9 plates.

Descriptions of new nests and eggs—*Micrœca brunneicauda*, *Amytornis whitei*, etc.

Description of eggs of *Notophoyx flavirostris*. *Emu*, XVI, p. 100.

Description of new or rare eggs—*Ninox humeralis*, *Climacteris minor*, *Eulabeornis castaneoventris*, etc. *Emu*, XVI, pp. 159-64, with 2 plates.

Description of nest and eggs of *Stipiturus ruficeps*. *Emu*, XVII, p. 39.

Description of nests and eggs of *Malurus leucopterus edouardi* and *Eremiornis carteri*. *Emu*, XVII, pp. 157-9.

Description of new eggs—*Malurus leucopterus*, *Stipiturus hartogi*, *Calamanthus hartogi*, etc. *Emu*, XX, p. 186.

Nests and eggs not previously described—*Atrichornis rufescens jacksoni*, *Pachycephala olivacea macphersonianus*, etc. *Emu*, XX, pp. 193-4, with 2 plates.

Descriptions of new eggs—*Menura superba edwardi* and *Gerygone tenebrosa*. *Emu*, XXI, pp. 31-2.

Descriptions of new nests and eggs—*Cinclosoma alisteri*, *Climacteris melanota*, etc. *Emu*, XXI, p. 164.

Description of nest and eggs of *Turnix olivii*.

Description of eggs of *Psephotus chrysopterygius*. *Emu*, XXII, p. 89.

Descriptions of new nests and eggs—*Amytornis purnelli*, *A. modestus*, etc. *Emu*, XXIII, pp. 241-2.

Notes on eggs collected in Central Australia by F. L. Whitlock. *Emu*, XXIII, pp. 243-7, with 8 plates.

THE H. L. WHITE COLLECTORS.

Mr. White would not have considered the "Bibliography" complete without the mention of his emissaries and their exploits in the field. Taken in alphabetical order there are:

(*a*) TRIPS BY H. G. BARNARD, QUEENSLAND.

To Cape York from September 11, 1910, to February 3, 1911. *Emu*, XI, pp. 17-32.

Through Northern Territory from January 8, 1913, to March 23, 1914. *Emu*, XIV, pp. 39-57.

To Cardwell District (accompanied by A. J. Campbell), August to October, 1916. *Emu*, XVII, pp. 2-38, with 8 plates.

Cardwell District, again, from end September, 1925, to end of January, 1926. *Emu*, XXVI, pp. 1-13, with plate. (Introduction and Annotations by A. J. Campbell.)

(*b*) TRIPS BY SIDNEY WM. JACKSON, NEW SOUTH WALES.

In addition to being H. L. White's curator of collections, or ornithological secretary, Jackson by direction made several trips of exploration, notably:

To southern, central and northern Queensland, from June to December, 1908. *Emu*, VIII, pp. 233-283, with 19 plates (really a "special part" of *Emu*).

To Dorrigo Scrubs, Bellenger River, New South Wales, from August to December, 1910. *Emu*, X, pp. 327-336, with 4 plates and plan.

To Cambo Cambo District, north-western New South Wales, August, 1911, to January, 1912. *Emu*, XII, pp. 65-104, with 15 plates.

To Bon and Frankland Rivers and Nornalup Inlet District, Western Australia, August, 1912, to January, 1913.

To Great Forester River Swamp, north-eastern Tasmania, August, 1915, to January, 1916.

To Diamantina country, western Queensland, June to October, 1918. *Emu*, XVIII, pp. 160-172, with 7 plates.

To the Macpherson Range, south-eastern Queensland, August, 1919, to January, 1920. *Emu*, XIX, pp. 258-272, with 7 plates.

To the Macpherson Range (second trip), August, 1920, to January, 1921. *Emu*, XX, pp. 195-209, with 10 plates.

(*c*) TRIP BY G. F. HILL, MELBOURNE.

To Kimberley, north-western Australia. *Emu*, X, pp. 258-290, with 6 plates (1911).

(*d*) TRIPS BY W. R. McLENNAN, VICTORIA.

Northern Australia—Narrative by H. L. White. *Emu*, XVI, pp. 117-158, with map. Observations by W. McLennan, pp. 205-231. Critical remarks on species from "Gouldian-Gilbert Type-locality," by A. J. Campbell. *Emu*, XVIII, pp. 172-188.

Torres Straits Islands—"Additions to H. L. White Collection," with collector's notes by A. J. Campbell. *Emu*, XX, pp. 49-66, with col. plate and text-map.

Groote Eylandt, Northern Territory—"Some Birds" (with observations from diary of W. McLennan), by A. J. Campbell. *Emu*, XXI, pp. 188-197.

Cape York Peninsula—McLennan's Narrative, Notes and Birds, by H. L. White, *Emu*, XXII, pp. 99-116, with 11 plates (1922). A particularly successful trip; besides many ornithological novelties, a unique scavenger moth (from a Parrot's nest) and a large venomous snake, a new genus, were discovered.

(*e*) TRIPS BY F. L. WHITLOCK, WESTERN AUSTRALIA.

Four months "On the East Murchison." *Emu*, IX, pp. 181-219, with 9 plates and map (1910).

"In the Stirling Ranges." *Emu*, X, pp. 305-317 (1911).

"Dampier Archipelago." *Emu*, XVIII, pp. 240-253, with 5 plates. (Also notes by A. J. Campbell, pp. 254-265.)

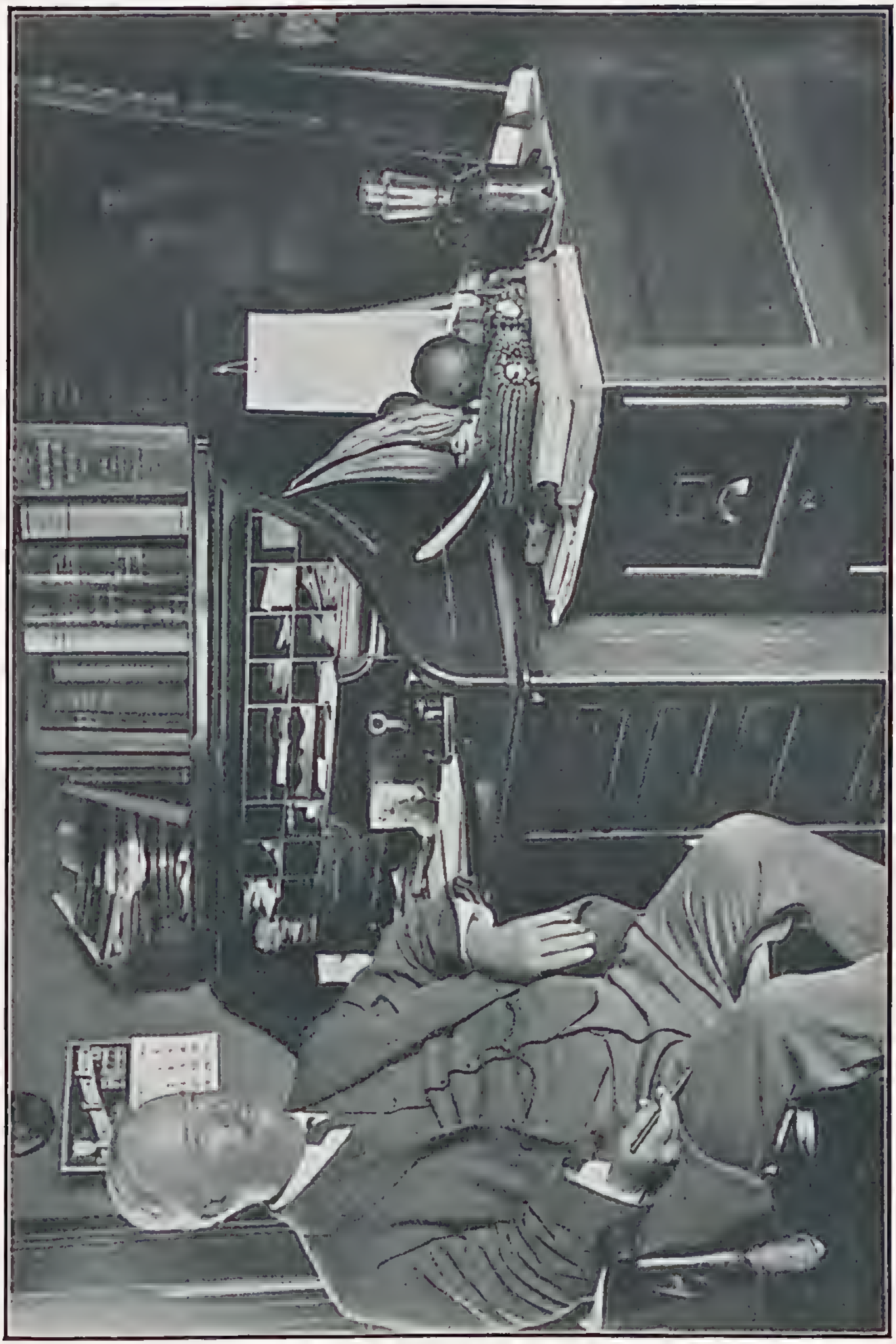
"Dirk Hartog Island and Peron Peninsula." *Emu*, XX, pp. 168-186, with 2 plates and map (1921).

"The Nullarbor Plain." *Emu*, XXI, pp. 170-187, with 6 plates (1922).

"To the Fortescue River and Hamersley Ranges." *Emu*, XXII, pp. 259-273, with 4 plates (1923).

"Journey to Central Australia." *Emu*, XXIII, pp. 248-281, with plates (and including annotations by A. J. Campbell).

"Ten Months on the Fitzroy River." *Emu*, XXV, pp. 1-21, and 3 plates. (With introduction by A. J. Campbell.)



THE LATE H. L. WHITE IN HIS STUDY.

Latest Photo. by Sid. W. Jackson.

The Little Bittern (Ixobrychus minutus).

By A. H. E. MATTINGLEY, C.M.Z.S., Melbourne.

WHERE the reeds, rushes, cumbungie and cats'-tails grow in the swamps and marshy areas of Australia, the Bittern is usually to be found. Since these birds live principally on shrimps, small fish, frogs, yabbies, mud-eyes and other small-fry of the water, it is but natural that one should find them in the vicinity of their food supply. Most of the Bitterns are nomadic; for the marsh-lands and swamps, particularly those adjacent to the River Murray, the greatest waterway in Australia, are liable to dry up in the autumn, thus compelling the Bitterns to seek other swampy areas from whose waters they can obtain their food.

The Bittern is a bird of stealth. It depends largely on its stealthiness for success when pursuing its prey and also to escape observation when danger threatens it. It catches most of its food by watching and patiently waiting for it at the water's edge. When it espies its prey, the long neck gradually, almost imperceptibly, elongates further and further. Each change is so deliberate that the Bittern appears to be motionless. When the bill of the bird is close to the water and the neck is stretched almost to its fullest extent, there is a sudden dart and the neck is rapidly withdrawn when the bill holds its prey. There is a pause as if to squeeze the prey and partially kill it, and then the captured creature is tossed into the throat and swallowed with a single gulp.

When disturbed, and should they elect to flee, they usually run away with head lowered and body couchant. Occasionally they fly away, but as they are poor fliers they will do so only under great provocation, since they appear to be afraid of the attack of birds of prey. When the Bittern is standing in its reedy habitat it is remarkable how closely its plumage merges into the background and how difficult it is to see the bird. This is stressed by the attitude its adopts as it stands on one leg with the other tucked up out of sight under its body-feathers; and with head and neck stretched to the fullest length it points its bill skywards, thus simulating the reeds surrounding it. The striped markings of the plumage further aid the bird in the deception brought about. When in this posture, both eyes are looking intently in the direction of danger and binocular vision is obtained by the bird, which is better protection for it than the use of a single optic. It is a singular fact that many of our birds use only one eye, when looking either for food or when danger approaches.

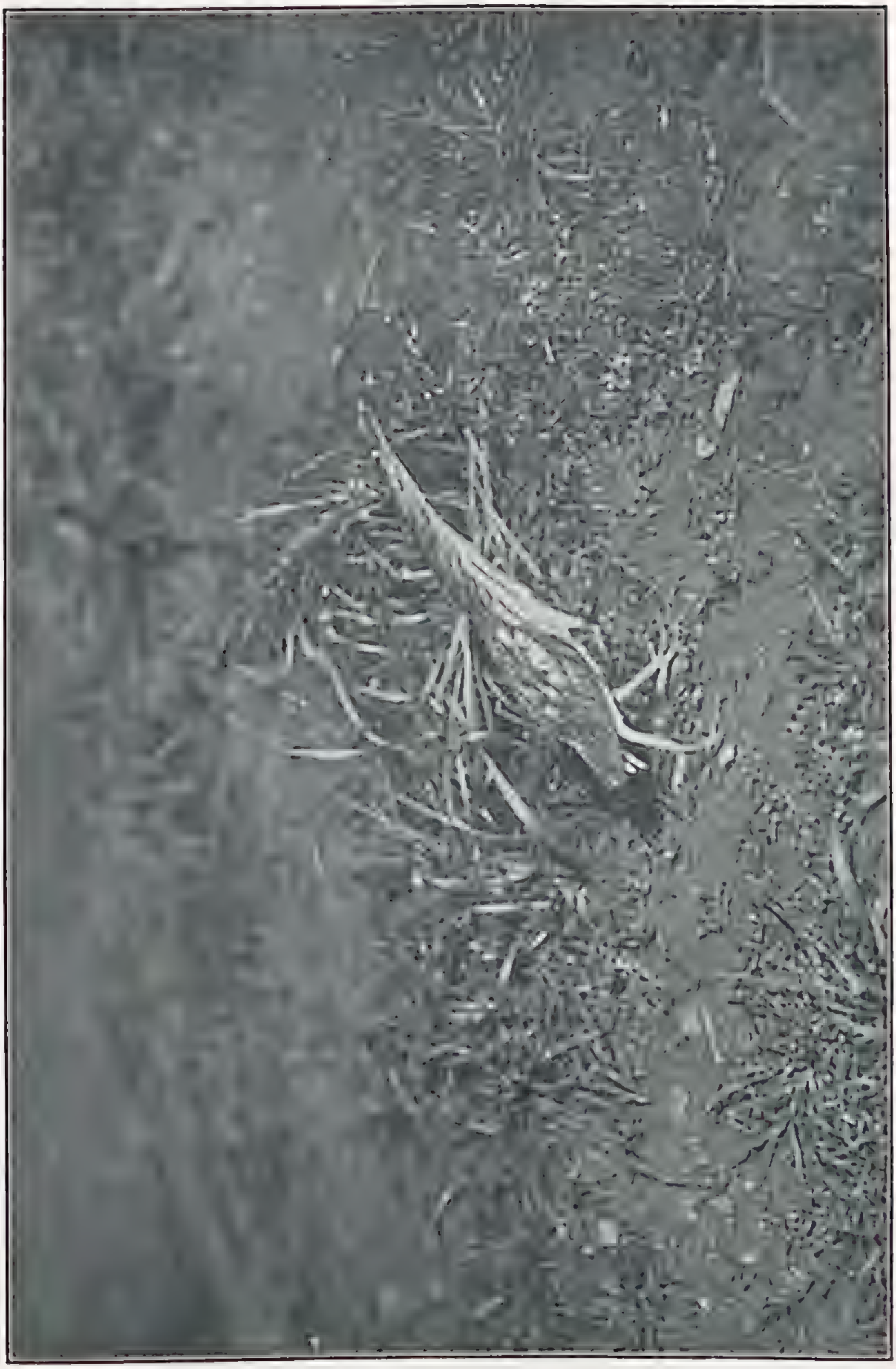
Both the upper and the lower mandible of the Little Bittern are slightly hooked, the better to hold its slippery prey. In its movements this bird usually keeps its head and neck erect and rigid and only moves the lower part of its neck. This appears to be adopted the better to enable it to escape observation by keeping the bird continually rigid like the lower part of a reed-stem. This movement makes it look grotesque, and rather like a mechanical toy in action.

The Little Bittern, as its name implies, is the smallest of its tribe and is a veritable pigmy when compared with the size of the common large Brown Bittern (*Botaurus poiciloptilus*). Owing to its size, the inaccessibility of its habitat, and the bird's stealthy habits, very few Australian ornithologists have seen this bird alive, and to most of us it has been a *rara avis.* For many years its nest remained undiscovered, and there have been few records of its discovery since. The nest is situated on a platform in the reeds and swamp vegetation and the clutch laid is usually four dull white eggs, quite distinct from the beautifully-tinted eggs of the larger species.

Taking all factors into consideration, the Little Bittern is a handsome bird. The feathers of the lower neck hang down in a tidy and attractive pectoral train, which when the bird is in repose adds considerably to its appearance. In life its legs are of a light greenish hue, whilst the pupil is an intense black with a light yellow iris.

I have not yet been able to discover whether the Little Bittern makes the deep booming note that is made by the large Brown Bittern. The only sound that I have detected is a note produced when the bird is angry; this note resembles "quark" and is uttered with a throaty timbre. The booming note of the Bittern when issued at night is supposed to have given the impression to the Australian aboriginals that a fearsome monster, the bunyip, existed in swamps.

Calls of the Frogmouth.—The Podargus has been very musical lately in the trees about my cottage, doubtless owing to the warm evenings of late September and the vicinity of the nesting-season. The male calls with a series of notes sounding to me something like "Did-did-doo! Did-did-doo!" repeated a couple of dozen or twenty times. The first two very rapid and slurred, the "doo!" strongly accented, and sometimes there is a sort of echo or response after the latter note, perhaps uttered by the female. If it is so, she gets in very promptly and in excellent time, reminding one of the female Whip-Bird coming in with the "double-chuckle" the instant her lord has finished his explosive phrase. The above call of the male Podargus is different from the "Oom!" sound, uttered while quietly sitting on an old paling-fence or low gum-bough at dusk. The former seems to carry more excitement, and was so strongly uttered during a couple of nights while rain was brewing that the whole atmosphere appeared to vibrate.—H. STUART DOVE, West Devonport, Tasmania (October 2, 1927).



LITTLE BITTERN, SHOWING RIGID, STEALTHY POSITION WHEN WALKING.

Photo. by A. H. Mattingley.

NATIONAL MUSEUM MELBOURNE

Systema Avium: An Inspiring Ideal.

By J. A. Leach, C.M.B.O.U., C.F.A.O.U., Sometime President, R.A.O.U.

The ideal of an authoritative, final list of the whole of the birds of the world appealed to the imagination as well as to the best instincts of all concerned with birds and ornithology. Birdmen, observing the distress of older ornithologists when well known names were discarded and unfamiliar names were used, longed for an official list. They desired this still more earnestly when some of these reputedly correct names were in turn replaced by other unfamiliar names.

In 1919, in the Preface of Volume VII of *The Birds of Australia,* Mr. Gregory M. Mathews wrote: "Recently the British Ornithologists' Union suggested to the American Ornithologists' Union the preparation of a *Systema Avium,* a catalogue of the birds of the world wherein the nomenclature of the whole of the world's avifauna would be standardised and this has been agreed upon. The co-operation of the Royal Ornithologists' Union has been asked for and accepted. Hence, as regards this question (nomenclature) we can look with equanimity into the future."

INTERNATIONAL BIRD UNIONS WORK FOR UNIFORMITY.

After many years of upset and uncertainty, ornithologists the world over eagerly welcomed the prospects of uniformity —"standardised" nomenclature Mr. Mathews called it. *Systema Avium Ethiopicarum* (listing one-half of the birds of the Ethiopian or African Region), by W. L. Sclater, M.A., M.B.O.U., was published in 1924. It had a good reception and gave a good lead to the series of catalogues of the birds of the six zoogeographical regions of the earth. The committee of the American Ornithologists' Union is at work on the American section of *Systema Avium.* Australians were delighted when it was learned that Mr. Mathews was to prepare the Australasian section. He had resided in Australia, his native land; had for a quarter of a century studied Australian birds and literature; had already published five lists of Australian birds: had listed the birds of New Zealand; had been a member of the Australian Checklist Committee; and had, since 1910, published quarterly one of the creditable parts of his great work, *The Birds of Australia,* which was completed in 1927.

Mr. Mathews, approaching the completion of a life's work in the twelve magnificent volumes of *The Birds of Australia,* and desiring uniformity and finality, offered to the Australian Checklist Committee, of which he was an honoured and active member, the compromise concerning genera and sub-genera that brought the genera of Mr. Mathews into a close approximation to those of Mr. Sclater and to the "standardised" nomenclature desired by all. The offer was accepted, and Mathews' genera and sub-genera were printed, in accordance with the form prescribed by the International Rules, in the second edition of *The Official Checklist of the Birds of Australia* (1926). No one was better qualified than Mr. Mathews for carrying out Australia's part in this great scheme for securing the requisite "standardised" nomenclature, providing finally "the same name for the same bird" throughout the world. Mr. Mathews had proved that he was fearless, candid, absolutely honest, and unswayed by tradition, sentiment, or self-seeking. He had even dared to oppose, for a time, the International Commission on Zoological Nomenclature, while objecting to the acceptance of the generic names of the binary but non-binomial author, Brisson (1760). In the course of his many revisions and changes, Mr. Mathews worked ultimately to a very finely divided standard of genera, unsuited to a general list such as *Systema Avium* must necessarily be.

Never has there been a more honest or a keener worker than Mr. Mathews. His very virtues, however, were a handicap when preparing, with "standardised" nomenclature, the catalogue of a section of the world's avifauna. Undoubtedly, he was the man to co-operate with an active committee seeking finality. With a desire for uniformity, as in 1919, on Mr. Mathews' part, the success of *Systema Avium Australasianarum* seemed assured.

SYSTEMA AVIUM AUSTRALASIANARUM.

At length, there came to hand the long-expected *Systema Avium Australasianarum,* "a systematic list of the birds of the Australasian Region, by Gregory M. Mathews, F.R.S.E., M.B.O.U. Prepared in conjunction with special committees of the British and American Ornithologists' Unions.

Part I. pp. 1-426; published 13th June, 1927.

Published by the British Ornithologists' Union."

Containing the names of one-half of the birds of the Australasian Region, this is a companion volume to *Systema Avium Ethiopicarum*; it contains 426 + 17 pages and is larger than its African prototype, which contains 304 + 4 pages. Australian ornithologists received this section of the world's "standardised" catalogue with interest, pleasure, and keen expectancy. As was confidently expected, in scope and general treatment it left nothing to be desired. It stands side by side with the Ethiopian list in plan and form, both being "published by the British Ornithologists' Union."

It has already been stated that matters promised well for a settlement of the numerous and long-continued disputes concerning the naming of birds. *Systema Avium Ethiopicarum* (1924), by W. L. Sclater, M.A., M.B.O.U., had come up to expectations so far as the "standardised" nomenclature was concerned. It was felt, however, that though a committee had been appointed, the list was probably an individual one. The possibility of an individual list came as a shock to Australians, because of the fear that individual ideas expressed in future lists may hinder seriously the realization of uniformity of the name for the same species of bird throughout the world.

The shock was intensified and became a stunning blow when *Systema Avium Australasianarum* was closely examined. It proved to be essentially an individual list, with Mr. Mathews in his best form for extreme splitting. Apparently, no committee supervised the preparation of the catalogue, despite the reference on cover and title-page to "special committees of the British and American Ornithologists' Union."

Three of many instances of striking difference in genera may be noted in the two sections of *Systema Avium* so far published. Eight species of Terns, common to the African and Australasian catalogues, are placed in one genus, *Sterna*, by Sclater but in six genera by Mathews. Six species of Dotterels in the genus *Charadrius* of the African list are placed in five genera on Mathews' new list. The 22 species of Falcons and Kestrels on the Ethiopian list are placed in one genus, *Falco*; the eight species of the corrresponding section of the Australasian list are divided into five genera. Thus the three genera of the African list cover approximately the species of sixteen genera of the Australian list. Mr. Mathews apparently lost sight of the "standardised" nomenclature which he considered advisable in 1919, and which was the *raison d'être* of *Systema Avium*. His list, indeed, has obscured the prospect which was so favourable for securing uniformity. "The same name for the same bird" cannot be obtained from these lists. The African and Australasian catalogues represent a wasted opportunity because of the failure to secure that uniformity of nomenclature which advocates of *Systema Avium* led ornithologists to anticipate. The committees, apparently, exercised little supervision over, or influence on, the sections of *Systema Avium* already published. It is feared that many of the names of *Systema Avium Ethiopicarum* and *Systema Avium Australasianarum* cannot be considered as "official"; certainly they cannot be considered as "final"—they differ amongst themselves.

Not only was Mr. Mathews a divider of genera, but he also listed some sub-genera. He, however, committed a breach of scientific procedure by setting out the binomial name of the species, not with the generic and specific names as prescribed by the Rules, but with the sub-generic name, printed as if it were a generic name, and the specific name. He did this instead of following the procedure for sub-generic names ordered by the Rules, which prescribe that sub-generic names shall be shown in parentheses between the generic and specific names. Some Australian ornithologists had set out the name of a sub-species in the binomial form prescribed for a species. Mr. Mathews did much worse here by printing sub-generic names as if they were generic names. He is thus guilty of misleading those not familiar with the peculiarities of his nomenclature. Such would not know, for instance, from the binomial name *Lazulena macleayii* of the Forest-Kingfisher that that Kingfisher belonged to the genus *Halcyon.* Mathews listed *Lazulena* as a sub-genus; but he named the species in an unauthorized form. Sclater also used sub-genera. He, however, set out the binomial name of the species according to the Rules. For Mathews to commit this breach of the scientific rules in the "standardised" *Systema Avium* is, at least, unfortunate.

MR. MATHEWS CREATES MANY SYNONYMS.

As a divider of genera Mr. Mathews is widely known. The present catalogue shows many reversals of previous decisions. Already he has, for various reasons (mostly as being unnecessary), reduced to synonyms a large number of generic and sub-generic names which were proposed by him in connection with the species included in the first half of *Systema Avium Australasianarum.*

In addition to proving (in *Systema Avium Australasianarum*) a splitter of genera, a user of an unauthorized method of indicating the name of a species belonging to a sub-genus, and a creator of many synonyms, Mathews has been uncertain in his generic standards. He first used the genera of Dr. Sharpe's *Handlist of Birds* in his *Handlist of the Birds of Australia* (1908). He became a grouper of genera in *The Reference List of the Birds of Australia* (1912). In *A List of the Birds of Australia* (1913) he was a divider of genera. He divided still more genera in his *Name List of the Birds of Australia* (1920), and continued so in the three parts of the *Checklist of the Birds of Australia,* completed in 1924. When working on *Systema Avium Australasianarum,* Mr. Mathews offered to the Checklist Committee "large" genera and sub-genera. He submitted his proposed names and these were printed in the second edition of *The Official Checklist of the Birds of Australia* (1926). However, in *Systema Avium Australasianarum,* over 80% of these sub-generic names were listed as genera, and only some 12% of them were retained as sub-genera. Is it possible that, when finishing the first part of the important work entrusted to him, Mr. Mathews forgot, at least when considering genera, his aspirations for a "standardised" nomenclature, forgot his duty to the British Ornithologists' Union which was publishing the catalogue, forgot his agreement with Australian ornithologists, and intruded his individual extremes into a "standardised" list which should have been kept free from such individual peculiarities?

"ONE-LETTERISM" A DEPARTURE FROM RULES.

A departure from the Rules of Scientific Nomenclature in both African and Australasian lists is the application of "one-letterism"; that is, "names differing only in the endings *-us, -a, -um, -as, -os, -is, -as, -es, -e,* or *-on* are considered identical." These endings have been sometimes referred to as "gender endings." *Albus, alba, album* are three forms of the Latin adjective used with a masculine, a feminine, and a neuter noun respectively. Generic names are invariably nouns and have no "gender endings." Some authors have applied this unofficial test to generic names in spite of the ruling of the International Commission on Zoological Nomenclature that *Picus* (for a Woodpecker), and *Pica* (for the European Magpie), are both valid generic names. Both are used in the latest British list. If *Picus* and *Pica* are both valid, why are not *Oxyurus* and *Oxyura* both valid? Not satisfied with this unauthorized action, and ignoring the word "only" in the above statement concerning "identical names," some nomenclators have extended the bar to include middle letters also. They have rejected, as Mr. Mathews has done, *Callocephalon* (for the Ganggang Cockatoo) because of a prior *Calicephalus*, and *Meliphaga* (for a Honeyeater) because of a prior *Melophagus* (for the sheep-tick). Both Mathews and Sclater rejected *Oxyura* (for the ruddy or stiff-tailed Ducks), because of a prior *Oxyurus*; yet Sclater used *Morus*, though there is a prior *Morum*, and Mr. Mathews used *Otus* (for an Owl) though there is a prior *Otis* (for a Bustard). Both Mathews and Sclater used *Tyto* for the Barn-Owl, though there is a prior *Tyta*. It is well that persons working outside the Rules should draw the line somewhere and not sweep away too many well-known names. They exempt the letter *-o* from their "identical" endings, though the reason is not apparent for this arbitrary choice of such endings. Mr. Mathews in the Australasian list used both *Alcyone* and the prior *Halcyon*, though both are derived ultimately from the same Greek word, and *h* is a letter often omitted in speech and sometimes from the written word, as in *Ieracidea* (for the Australian Brown Hawk), which was formerly written *Hieracidea*. The *-e* also is sometimes omitted and sometimes not, as in this case.

Inconsistency seems to be inevitable for those who break the Rules and ignore the rulings of the International Commission on Zoological Nomenclature—the League of Nations in matters zoological. If the Rules are departed from, it is not possible to draw a line. Strict adherence to the Rules is the only safe plan for securing uniformity of practice and name. However, some ornithologists object to any breach of the Rules;

especially do they object to "one-letterism." "Confusion" is unthinkable for scientific ornithologists. Bird-lovers, having vernacular names, are little interested in scientific names. Australians are pledged to accept the "same name for the same bird" as is used by the British Ornithologists' Union. As soon as the name is officially approved as final, it will be used by Australian ornithologists.

CLASSIFICATION USED BY MATHEWS.

In the introduction of *Systema Avium Australasianarum* it is stated that the classification of *A Handlist of Birds,* by Dr. Bowdler Sharpe, is used. One who has followed Mathews' work, with its five lists of Australian birds, would expect that classification to be considerably modified. That it is so modified is evident from the following: Sharpe listed Penguins as an order placed between Grebes and Petrels. Mathews accorded to these remarkable southern birds the rank of subclass and placed them next to the Emu and Cassowary. While Sharpe used six families for the Parrots of the world, Mathews used twelve families for the Parrots of the Australasian Region. Sharpe placed all the Cuckoos of the world in one family, while Mathews used four families for the Cuckoos of the Australasian Region. Sharpe used one order for the roller-like birds of the world; but Mathews used six orders for the reduced number of similar birds found in the Australasian Region; one order each for Frogmouths (*Podargus*), Rollers, Kingfishers, Bee-eaters, Nightjars and Swifts. However, that is in keeping with his splitting tendencies, though such should have no place in an official catalogue with "standardised" nomenclature. He has extended that characteristic to subclass, order, family, genus, and sub-species. His specific standard is conservative and does not exemplify the tendency referred to.

THE AUSTRALASIAN REGION.

The Australasian Region here includes: on the west, Amsterdam Island and St. Paul's Island of the South Indian Ocean (about 37° S. Lat., 77° E. Long.); on the south, the section of Antarctica south of Australia and New Zealand; on the east, many of the islands of the eastern Pacific Ocean; and on the north, the Sandwich Islands. The boundary passes southward east of the Philippine Islands, thence between Borneo and Celebes, and between the small islands of Bali and Lombok, separated by the very deep and narrow strait through which passes "Wallace's Line," the western boundary of the Australasian Region. The Australasian Region thus enclosed is characterized by islands which are sometimes areas remote from other land and presenting conditions favourable to the isolation, development, and specialization of species, genera, and even families, as well as to the production of flightless birds, which are much more numerous in the Australasian Region than in any other of the six zoogeographical regions of the world.

FOUR POINTS FOR COMMENT IN *SYSTEMA AVIUM.*

1. Valuable features of the Australasian catalogue are (*a*) the complete synonymy or list of other names given to genera, species, and sub-species by various authors, and (*b*) the index of generic names and synonyms; these enable a generic name, if known, to be located and the geographical range of the species and the scientific family and order to be obtained with little trouble. The African half-list has no index, and little in the way of synonymy. The species are arranged according to the classification of Mr. A. H. Evans and Dr. H. Gadow, which is less familiar to many Australian students than is the classification of Dr. Sharpe in *A Handlist of Birds.* Time may easily be spent searching for a name in *Systema Avium Ethiopicarum.*

2. The geographical range of each species within the Australasian Region is given; although "extra-limital" often denotes a range, unspecified in many cases, beyond the Region. The African list gives the geographical range of a species both within and without the Ethiopian Region; this is appreciated by ornithologists.

3. The absence of a map of the region in both African and Australasian catalogues is a drawback. The compiler knows the situation of the restricted range of a rare bird, whether inland or on an oceanic speck of land. The issue of a map, while generally involving little extra expense, would mean much to ornithologists and students of bird-life.

4. An unusual feature is the absence of vernacular names from the *Systema Avium Australasianarum.* This is the first regional list that has come under notice in which vernacular names are omitted. The many new or unfamiliar generic names, and sometimes also unfamiliar specific names, will at times render it difficult for an ornithologist to obtain the correct name of a particular species of bird. Generally, vernacular names have changed less than scientific names, so that they are a valuable aid, especially for the non-expert and the student, in obtaining from a list the binomial name where several species have a similar geographical range. Mr. Mathews included vernacular names in his previous lists and the reason for their omission here is not apparent.

SUB-SPECIES OF AUSTRALIAN BIRDS.

In the reviews of *The Official Checklist of the Birds of Australia,* second edition (1926), the main criticism made by ornithologists and reviewers overseas was that the validity of proposed sub-species, listed by Mr. Mathews, was not indicated in the Australian Checklist, though, for easy reference, all names connected with the species in works on Australian birds were printed in chronological order. Mr. Mathews, in this half-catalogue, has listed scores, nay literally hundreds, of his numerous specific and sub-specific names as invalid or at least unnecessary. He has reduced to synonyms not less than 40% of the well over 500 specific and sub-specific names proposed by him in connection with the Australian birds listed in this half-section of *Systema Avium.* Surely never did an author previously treat his own work so severely! An admitted reduction of over 40% by the author is a heavy price to pay for hurried work, faulty standards, or unnecessary splitting of sub-species. With the type-specimens and material used by Mr. Mathews not available in Australia for inspection by the Checklist Committee, and with scores, even hundreds, of these names now listed as synonyms by their creator, it would have been profitless for the Checklist Committee, at that stage, to spend time in tracing, or in attempting to trace, hundreds of specific and sub-specific names, concerning which the author has indicated that over 40% need not, or should not, have been used.

At the present time, with so many of these names reduced to synonyms by their giver, it may be profitable to enter on an investigation of Australian sub-specific forms. This is being done by the three Australian ornithologists preparing, for early publication, *Australian Bird Biographies.* Messrs. A. J. Campbell, F.A.O.U., C.M.B.O.U., A. G. Campbell, R.A.O.U., and C. L. Barrett, C.M.Z.S., have the matter well in hand, and in due time an up-to-date list of Australian sub-species will doubtless be issued. It seems probable that the number of sub-species retained by Mr. Mathews will then prove to be still too large.

SYSTEMA AVIUM AND THE FUTURE.

There is little of "standardised" nomenclature in *Systema Avium Australasianarum.* In its present form, it has definitely turned back the wheels of progress in the march towards uniformity. The committee failed to act, and Mr. Mathews' splitting tendencies, being uncontrolled, affected orders, families, genera, and sub-species.

During the eight years that have elapsed since the well-received proposal for *Systema Avium,* a catalogue of the world's birds, with "standardised" nomenclature, was made, two half-lists with widely differing standards have been published. These, as already seen, deal with the Ethiopian and Australasian regions. Possibly, during the next five years, the other six half-lists for the Eastern Hemisphere will be available. Before that time, too, the American catalogues of the birds of the Western Hemisphere will, it is hoped, have been issued. Doubtless, a move will then be made for the complete, authoritative and final catalogue of the birds of the world that was so earnestly desired and impatiently expected. It seems as if the year 1937 will be in sight before that long-sought, official final list will be available. This trouble and long delay have resulted from lack of preliminary discussion and agreement. The desire for uniformity was, and is, universally present.

It is a sad waste of effort, money, and years to print such diverging lists and to cause such confusion the world over. A halt should be called; no more individual caprice should be allowed in a work of world-wide importance. At least, the generic names of widely-spread species, "the same name for the same bird," should be fixed by the committees of the British and American Ornithologists' Unions.

Reviews.

"The Birds of Australia." By Gregory M. Mathews, F.R.S.E., M.B.O.U.

At last, the publication of this monumental and sumptuous work on the birds of Australia has been completed; practically every quarter of the year from October, 1910, to February, 1927, one of the highly creditable parts has appeared. Seventy-four parts and five supplements make up the twelve volumes and a supplementary volume; appendices are included in Volumes V, VI, VII and XII. The issue was limited to 225 copies.

The plan of description was well-developed and consistently carried out; full information from many points of view was given in orderly fashion concerning Australian birds. Generic names with references, synonymy, and characteristics were followed by a key to the species, the consecutive number of the species, the scientific name, vernacular name, and the plate number (though, by the way, the plates were not numbered); often this number was asterisked to direct attention to a footnote giving the name at publication, which differed from the name at the time of preparation. After the original reference, a full synonymy and the names used by different authors in different publications followed. After the distribution, there followed description (adult male, adult female, immature), nest, eggs (number, description, measurements, sometimes incubation period), and breeding season.

The letterpress gave full notes concerning the history, habits, nomenclature, and sub-species of each species of Australian bird. Where little was known of a rare species, the original descriptions were quoted.

Australian field ornithologists, almost without exception, supplied Mr. Mathews with specimens and field notes which were freely used and acknowledged. All Australian ornithologists regretted deeply that the extensive and valuable collection of Australian bird-skins used by Mr. Mathews was not secured for Australia. This collection is in the Tring Museum of Lord Rothschild. Of course, it is in good custody; still Australians hope that some day it will be found possible to secure the collection for Canberra, where the National Museum is to be built at an early date. As Gould's collection is in Philadelphia and Mathews' collection is in England, opportunities for future Australian students cannot be considered complete.

Australian ornithologists appreciate the sincerity of purpose of Mr. Mathews, his courage, and his determination during difficult times in carrying to a successful conclusion such a heavy task spread over almost a quarter of a century. They admire also the unbiased fairness that would not allow the retention of a doubtful or challenged name or the shirking of a difficulty.

In these twelve splendid volumes, Mr. Mathews has stressed largely the nomenclatural aspect, a phase of ornithology which received little attention from John Gould in the eight folio volumes of his highly valued work, *The Birds of Australia.* Gould seldom listed a date, and therefore he failed to recognize occasionally that another name listed by him was really older than the name used by him. He was a firm believer in the use of the prior name; this he showed by changing when necessary to an older name. These two great ornithological works which have the same title, and of which Australians are justly proud are thus complementary. Gould emphasized the field and natural history sides, while Mathews stressed the academic and nomenclatural aspects. An Australian student having the use of these fine volumes is well equipped with material on which to base future studies.

Neither time nor money nor effort was spared by Mr. Mathews. As a result, it seems probable that in future few changes will be required in the names of Australian birds. His extensive library, the best collection of books dealing with Australian birds ever assembled, has been effectively used and is still essential to him in the preparation of the second part of *Systema Avium Australasianarum.* Australians are waiting rather impatiently for the completion of that important catalogue of the birds of the Australasian Region, so that this unique library will be available for the new National Museum under the direction of Professor Colin MacKenzie, at Canberra, the Federal Capital of Australia.

Parallel to Mathews' *Birds of Australia*, and arising from it, are seven ornithological publications. First, the magazine entitled *The Austral Avian Record* was maintained and published by Mr. Mathews; it was almost restricted to matters connected with the Australian avifauna. Secondly, Mathews and Iredale prepared *A Manual of the Birds of Australia,* of which only the first volume has been published. It is hoped that the other three volumes of this very valuable Manual will be published shortly. The remaining publications were the five lists of Australian birds. These lists serve to mark phases in the development of the nomenclature of Mr. Mathews. They were: *The Handlist of the Birds of Australia* (1908), based on *A Handlist of Birds,* by Dr. Bowdler Sharpe; *The Reference List of the Birds of Australia* (1912); *A List of the Birds of Australia* (1913); *The Name List of the Birds of Australia* (1920); and *The Checklist of the Birds of Australia,* completed in 1924.

For a quarter of a century, Mr. Mathews, assisted for several years by Mr. Tom Iredale (now of Sydney) followed up every disputed or doubtful point connected with Australian ornithology. The results of these researches have been accepted by ornithologists, who owe him a debt of gratitude. Most of the difficulties connected with the "Watling Drawings," painted by the convict artist, Thomas Watling, about Sydney in 1792, and the numerous binomial names based on these and given by Dr. John Latham in 1801, have been removed. However, *Cuculus flabelliformis* (for the Fan-tailed Cuckoo), and *Falco axillaris* (for the Australian Black-shouldered Kite), come to mind as names still requiring settlement, Mr. Mathews rejected both; the Checklist Committee retained both. It is admitted that there is some ground against these names; few of these ancient paintings and descriptions were correct in every particular. Australian ornithologists will accept the decision of the International Commission on Zoological Nomenclature or other competent body concerning these names.

Five artists took part in the work of preparing the original paintings for the plates of *The Birds of Australia.* Not one of these artists had seen under natural conditions the birds they depicted. The drawing and the colouring are generally well done and the standard of excellence of the plates is noteworthy. Credit is due to the artists, printers and those who coloured the hand-coloured plates.

The publishers, Messrs. H. F. and G. Witherby, have done their part well. In spite of the strenuous conditions resulting from the Great War, which caused the suspension of so many activities, the parts of *The Birds of Australia* were issued from the press with unfailing regularity and right up to the original high standard of production.

Mr. Mathews' work has been instrumental in causing in Australia a review of the position and in bringing all Australian ornithologists into line with their *confrères* of the British and American Ornithologists' Unions, so that all now use the same Code of Zoological Nomenclature; and in providing an opportune time for a "final" list securing "the same name for the same bird" throughout the world.

Australians appreciate Mr. Mathews' work and accept the whole of it except the continued division of genera and the creation of specific names. Australian members of the Checklist Committee accepted Mr. Mathews' proffered compromise concerning genera and sub-genera, and printed, in *The Official Checklist of the Birds of Australia,* Second Edition (1926), his sub-genera in accordance with the form prescribed by the International Rules of Zoological Nomenclature.*

The completion of this great work, *The Birds of Australia,* by Gregory M. Mathews, is an outstanding event in Australian ornithology. The author is to be congratulated on achieving his life's aim in so creditable a manner, and Australians are to be congratulated on having available in such complete form the full history of Australian birds.—(J.A.L.)

"Records of Birds Bred in Captivity," by Emilius Hopkins, M.B.O.U. (published by H. F. and G. Witherby, London).

This is a book of pronounced value to aviculturists and of some interest to general ornithologists. For many years the author has been collecting records of the different species of birds which have bred in confinement, and he has gathered an astonishingly large list. It is to be regretted, however, that Dr. Hopkins did not make greater efforts to secure Australian records; certain aviculturists in this country could have assisted him very materially. Moreover, many of the names(both technical and vernacular), used by the author for Australian birds are long since out of date. Partial atonement for this failure is offered by records of Australian species bred abroad. Australians may be surprised to learn that records are given of the breeding in Europe of such rarities as the Princess Alexandra Parrot (*Polytelis alexandræ*), Paradise Parrot (*Psephotus pulcherrimus*), all the *Neophema* Parrots, including the Turquoise (*N. pulchella*) and Scarlet-crested (*N. splendida*), and also *Pezoporus wallicus,* which the author wrongly terms "Night" Parrot. Most of these records of rare Australian Parrots breeding abroad are from forty to sixty years old. Among numerous other records of interest to Australians are several species of Finches and also the Satin Bower-Bird, Regent-Bird, and Cat-Bird.

Handbook of the Birds of Eastern China (Part IV), by J. D. D. La Touche, M.B.O.U. (published by Taylor and Francis, London).

The present booklet will be welcomed by those who have seen earlier parts of this useful work. The latest part treats the families *Ploceidæ, Fringillidæ, Bombycillidæ* and *Hirundinidæ.* It would be a fine thing if each of the Australian States had its ornithological Handbook, executed in the succinct yet thorough manner of Mr. La Touche's work.

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* Mr. Mathews offered to accept large genera if the finely divided genera used by him were printed as sub-genera. He supplied the names of genera and sub-genera.

Stray Feathers.

The Brown Warbler (*Gerygone richmondi*).—This bird is perhaps the smallest of the eleven species of small birds that make up the list of the Australian members of the *Gerygone* genus of the large and cosmopolitan family called by the comprehensive name of Warblers. Though not plentiful like the white-throated species (*G. olivacea*), in the immediate surroundings of Sydney, it is well known to those of our members who visit the thick brushes along the upper Port Hacking River of the National Park or in the Gosford district.

It was found nesting in a piece of similar country at Kurrajong Heights in early December. The nest was almost completed. The female bird was doing the actual construction work, making trip after trip to the nest, carrying threads of bark which she was arranging inside the nest. One always knew when she was coming. Away through the trees the light but clear little notes that are said to repeat "What is it, what is it?" are suddenly heard. They come from the male bird and mean that the female is about to start off for the nest with her bill full of bark. The song (if it can be termed a song), grows louder and louder and two little brown birds appear, making their way towards the nest by small stages from tree to tree and branch to branch. The male bird leads the way, singing with great animation, and every time he alights he flutters his wings (like a Jacky Winter hovering), but for a brief moment only, as both birds are eager to press on to the nest. In darts the female, almost too quickly to follow with the eye. While she is inside the male bird on the nearest twig flutters and flutters his little wings in ecstasies of joy and excitement until she comes out, and off they fly together.

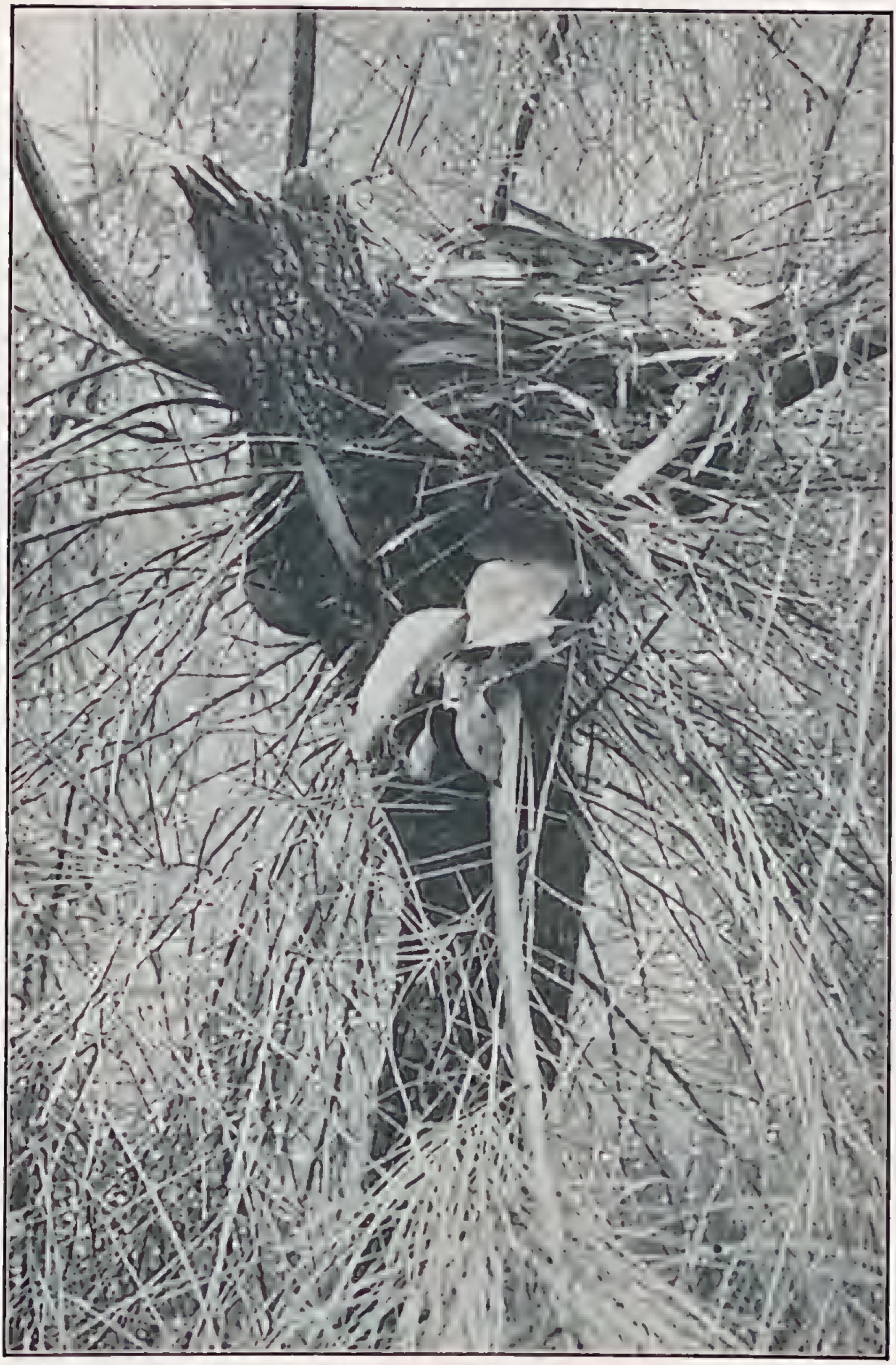
I saw and heard this performance many times from a few feet from the nest. It was all very pretty. On one occasion when the worker stayed inside longer than usual, the male bird flew to the nest and looked in to make sure all was well. The nest was suspended about seven feet from the ground in a wild raspberry cane. It had the heavily hooded entrance typical of the nests of this genus, and was made of red bark similar in appearance to that used by the white-throated species. In shape it was very long and tapered evenly (like a boatswain's marline spike), all the way to a fine end. The exterior was decorated with pretty pieces of light blue lichen. The birds were of most inconspicuous plumage—brown above, dirty white below, throat bluish-grey with slight markings: sexes alike.—H. Wolstenholme, Wahroonga, N.S.W. (November 20, 1927).

Jacky Winters' Low Nesting.—The charming little Jacky Winter or Brown Flycatcher (*Microeca fascinans*), shares with the Wagtail the honour of being the most familiar and most liked Flycatcher in many parts of Australia; certainly this is the case along the coast of N.S.W. Jacky Winter's tiny nest is usually placed in the fork of a dry horizontal branch, and may be as high as fifty or sixty feet from the ground. Rarely does it build so close to the ground as the Wagtail frequently does. A few weeks ago, however, Mr. H. Wolstenholme, R.A.O.U., called my attention to a Jacky Winter's nest that was only about three feet from the ground; it was in a paddock at Wahroonga (Sydney), scarcely twenty yards from a busy road, and was placed on the horizontal branchlet of a dry bough lying on the ground. A dull, showery day prevented me securing good photographs of the birds themselves, so I turned attention to the nest of a Grey Thrush a little distance away. The accompanying illustrations show rain-drops suspended on the casuarina needles about the Thrush's nest, and also on the vegetation near the Jacky Winter's wee home.

Curiously enough, at about the same time Mr. A. F. D'Ombrain, R.A.O.U., of Gosford, photographed a Jacky Winter's nest in a similar situation. The limb of a small eucalypt had blown down, and on one of the forks of this, less than two feet from the ground, the birds had built their nest. It was just a few yards off the fairway of the Avalon golf links, a few miles north of Sydney. Mr. D'Ombrain observes that there were plenty of more secure and higher situations which the birds could have chosen. However, they got the brood safely away.—A. H. Chisholm, Sydney (November 20, 1927).

* * *

Cuckoo Notes: New Combination Clutches.—This season the Cuckoos are giving the birds in southern Victoria a particularly bad time. I do not recollect another season when they have arrived in such numbers. I refer more particularly to the two species of Bronze Cuckoos and the Fantailed and Pallid Cuckoos. I fancy I have taken two lots that have not been previously recorded. At Mitcham, some fifteen miles east of Melbourne, on November 5, 1927, I found the nest of the Orange-winged Sittella (*Neositta chrysoptera*), containing two eggs of the Sittella and one of the Fantailed Cuckoo; and yesterday, December 11, in a gully near Iremont a nest of the Rose Robin (*Petroica rosea*), contained an egg each of the Narrow-billed Bronze Cuckoo (*Chalcites basalis*) and Fantailed Cuckoo (*Cacomantis flabelliformis*). In the case of the Rose Robin I have taken an egg of the Square-tailed Cuckoo, and this species has been recorded by the late H. L. White as a foster-parent to this Cuckoo. But here we have, as I have mentioned, two Cuckoo eggs not previously recorded for this Robin.—Frank E. Howe, Canterbury, Victoria (December 12, 1927).



Nest of Grey Thrush, Showing Rain-drops on the Casuarina Needles.
Photo. by A. H. Chisholm.

NATIONAL MUSEUM OF MELBOURNE

Befriending Wild Birds.—Here are a couple of pretty bird stories that have reached me from bush boys, both good observers. The first, from Will Griffiths, of Penfield, South Australia, is as follows: "While I was cultivating one day, I saw a Dotterel flutter along the ground in front of the horses. Knowing by this that she had a nest I stopped and hunted for it. In a minute or so I found it. A few little twigs lay in a hollow in the top of a clod, with two cream eggs with dark spots. The eggs were about the size of a starling's. Not wishing to take or destroy the eggs, I made another nest about three yards to the right. I marked the spot very carefully. The nest and eggs were then on cultivated ground, where the horses would not tread on them. Then I went three or four more rounds, and knocked off for dinner. When I resumed work in the afternoon, the Dotterel was peacefully sitting on her new nest. Out of six nests that I have shifted during the last two seasons, four birds have returned. One of the two other birds was not sitting, and it became dark before the other one had time to locate her nest."

The second story is from J. Sewell, Barrallier, N.S.W.: "I was passing a briar bush in which there was a Blue Wren's nest, with three young ones. Noticing the parent birds flying around in a state of excitement, I approached to investigate. Just as I reached the bush, one of the young birds fluttered to the ground at my feet, and another one just managed to fly on to my shoulder. The third one was in the jaws of a brown snake, which had climbed up the bush. I carried the two young birds to another bush a few yards away and went back and killed the snake. As I was carrying the young birds back to the nest, one of the parent birds used to light on my arm and remain there for a moment and then fly to the nest and back to my arm again. I have been feeding the family on crumbs of bread each day, and now they are so tame that they will approach to within two inches of my hand."—A. H. Chisholm, Sydney (1/12/27.).

* * *

Seeking Satin Flycatchers.—Through the kindness of Dr. B. Anderson, R.A.O.U., of Westbury (Tasmania), I was enabled recently to take a trip to a locality frequented by that beautiful summer visitor, the Satin Flycatcher (*Myiagra cyanoleuca*). Catching the early train and travelling about forty miles, I then alighted and walked the short distance to "The Willows," where Dr. Anderson's car was soon ready, and we drove to a part of the Meander where a small wooden bridge crosses the river. Leaving the car in a bush paddock, we walked up the bank of the river, amid a strong growth of white gums, wattles, dogwood and tea-tree. The "Satins" were calling strongly with their reedy notes just across the river, as were the Olive Whistler (*Pachycephala olivacea*), with their remarkable "I'll whit-yu," strongly accenting the "whit." One of these came across to our side of the river, and after calling repeatedly from a patch of scrub, suddenly flew across in front of us, revealing a beautiful golden-tinted plumage.

Strolling back towards the bridge, we heard the Flycatchers calling excitedly from some poplars planted close to the road. Passing through a swing-gate and glancing upwards, we at once espied a "Satin's" nest about eighteen feet up, in a most conspicuous position. The neat little grey cup was placed on top of a dead poplar limb which projected horizontally from the tree, and then curved upwards in a shallow bow, the nest being situate at the highest part of the curve. The birds continued to call near by, but would not return to the lichen-adorned cup while we were about.—H. STUART DOVE, West Devonport, Tasmania (November 15, 1927).

Correspondence.

THE NAME "PODARGUS."

(TO THE EDITOR.)

SIR.—In *The Emu* (Vol. XXVII, p. 117), Mr. F. L. Berney describes the gouty appearance of the feet of *P. papuensis* and takes it for granted that it was on account of these gouty feet that Cuvier called the bird *Le podarge—podarge* being the French word (through Greek and Latin *podagra*), for gout in the feet. Mr. Berney certainly appears to be correct, for Cuvier is said to have been the "greatest naturalist of his day" and "of pre-eminent ability as a scientific observer" and he would in all probability have observed the thick, swollen feet.

The transposition of one letter for another (*g* for *r*), whereby the Latin *podagra* became the French *podarge,* would, I think, be an instance of the well-known process in word-formation which philologists call *Metathesis*—e.g., L. *certus* was changed from *cretus* and the word "bird" was once spelt "brid"—rather than an anagrammatic change, such as *dacelo* from *alcedo.* An anagram is a purely artificial rearrangement of all the letters of one word to form another word. Anagrams have long been resorted to by scientists for names of new genera. Dr. W. E. Leach (1815), made *dacelo* from *alcedo.* This is the stock example among bird names. Later we find *Zapornia* (Stephens) from *Porzana* and *Tobur-ides* from *Butor-ides* (Mathews).

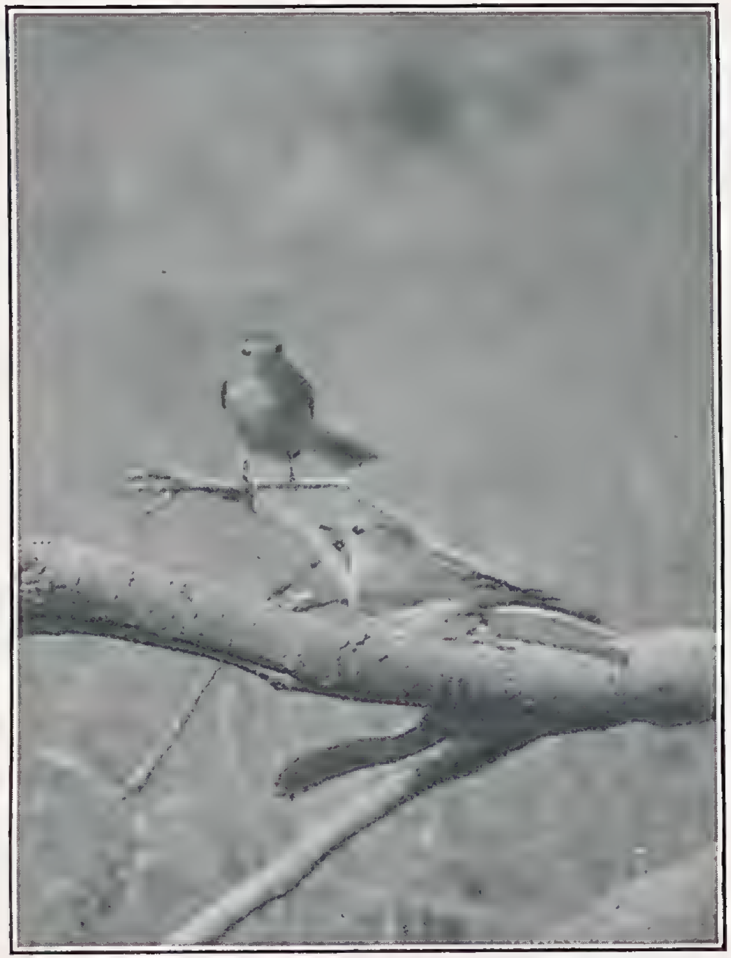
Mr. Berney refers to the flight and wings of the *Podargus,* but it is the feet only that the name refers to; the wings do not come into the matter. It seemed to me the bird might have been thought slow on its feet.

Yours, etc.,

Wahroonga, Sydney. H. WOLSTENHOLME.
November 17, 1927.

MR. H. WOLSTENHOLME EXAMINING JACKY WINTERS' NEST SITUATED ON DRY BRANCH ABOUT FOUR FEET FROM GROUND; WAHROONGA, N.S.W.

Photo. by A. H. Chisholm.



PAIR OF JACKY WINTERS AT NEST ON DRY BRANCH NEAR GROUND; AVALON, N.S.W.

Photo. by A. F. D'Ombrain.

Obituary.

Dr. GEORGE HORNE.

The late George Horne, M.D., M.B., of Collins Street, Melbourne, joined the R.A.O.U. early in its history, and was for many years a member of Council. He was not only a bird-lover, but a keen observer. When residing at Clifton Hill he had a flight aviary. He succeeded in keeping in captivity many species of Honeyeaters and the wily Blue Wren. His last important paper, "Blue Wrens in Melbourne Gardens," recently appeared in the *Victorian Naturalist,* XLIII, p. 216. One critic said: "We have read very many 'observations' . . . . but few have equalled" that article.

Dr. Horne was an ethnologist of repute. The collection of a life-time of stone implements and weapons he donated last year to the National Museum, Canberra. His book, *Savage Life in Central Australia,* written in collaboration with Mr. G. Aiston, embodied Dr. Horne's life-long research, culminating with two trips into Central Australia concerning the habits and customs of the aborigines.

Dr. Horne was born at Brunswick, Victoria, August, 1860. His death occurred November 14 last. He was educated at Carlton College, Hawthorn Grammar School and Melbourne University. He was one of the leading specialists in gynæcology, and was connected with the Women's Hospital for over thirty years. He was in London when the Great War broke out, and at once joined up with the Australian voluntary hospital unit. By the end of the first August of the war, the unit was in hot service in France, where Dr. Horne (now Lieut.-Colonel) remained till 1915.

Dr. Horne was much interested in the St. John Ambulance Association, and in November, 1924, Lord Stradbroke (then Governor), invested him with the insignia of Knight of Grace of the Order of St. John—a rare distinction. The late doctor had a charming personality. Those who knew him best did not know which to admire most, as one has truly said, "the fine brain and erudition of the man, or his simplicity and integrity of character." He never spared himself. One example came under the observation of the writer. There was a camp-out of the Royal Ornithologists' Union on Kangaroo Island, 1905. One party, in which the doctor joined, had been out all day. When it returned to camp it was reported that a lady, foot-sore, had been left behind. The doctor quietly procured a horse, and going back about three miles put the lady on the animal, walked himself and gained the camp before nightfall.

Members of the R.A.O.U. will sincerely condole with Mrs. Horne and with her neice, Miss Helen Bowie, in their great loss. Miss Bowie, an army nurse, saw service in the war, in France, with her uncle.

MR. J. R. CHISHOLM.

Members of the R.A.O.U. will regret to learn that Mr. James R. Chisholm, of Prairie, northern Queensland, died recently, at the age of 72. A pastoralist of original views, Mr. Chisholm was best known for his gossipy writings, "Along the Line," in the *North Queensland Register.* He was a student of birds in a modest way, and contributed several interesting paragraphs to *The Emu.*

MR. LOUIS AGASSIZ FUERTES.

Louis Agassiz Fuertes, noted American painter and illustrator of bird-life, was killed in a railroad crossing accident on August 22, 1927. Mr. Fuertes was born in Ithaca in 1874 and had been lecturer on ornithology at Cornell. He was the illustrator for Chapman's "Handbook" and "Bird Life," Burgess's "Bird Book for Children" and "Animal Book," and Mabel Osgood Wright's "Citizen Bird" and "Birdcraft," as well as numerous species series for the "National Geographic Magazine."

Mr. Littlejohns' Lyre-Bird Film.

MANY of the difficulties against which nature-photographers have to contend were revealed in a moving picture of Lyre-Birds which was shown to a large audience of members of the R.A.O.U. at the Foresters' Hall, Melbourne, on October 17, 1927. The filming of these birds had been carried out by Mr. R. T. Littlejohns, who is well known throughout Australia for his fine bird-photographs. In introducing Mr. Littlejohns to the meeting, Dr. J. A. Leach complimented the photographer upon the splendid work he has already achieved with the camera and predicted that similar success will attend him with the cinematograph.

The screening of the picture ran through 900 feet of film and many phases in the home-life of the Lyre-Bird were shown. Some very fine forest scenery was shown in the "haunts of the Lyre-Bird," and this was followed by several striking views of the female as she scratched for food amongst the *débris* on the ground. Other times she could be seen running along fallen logs out of the way of the cinematographer, and once she came out into the open and ran for some distance along a tourist track. The shyness of the male bird is well known, but Mr. Littlejohns has even succeeded in filming the male, with its tail outspread, on a dancing mound. The film concluded with several unique scenes of the female bringing food to the young.

After the screening of the film Mr. Littlejohns entertained the audience with stories of his experiences amongst these interesting birds. It had taken almost five years to complete the film, and in that time he had spent many week-ends throughout the whole year in the ranges in pursuit of these birds. Mr. Littlejohns expressed high appreciation of the valuable assistance rendered him by Mr. Herschel, who had been very liberal in supplying the apparatus to enable him to carry out the work.

Mr. Herschel, who commended Mr. Littlejohns for his enthusiasm, related that he had, regardless of expense, spared no efforts to make the enterprise a success. He had sent specially to Europe to procure a lens which would be of advantage in dense forest gullies where the light was dull. The developing of the film had also required much attention, and it was often necessary to intensify portions of it. Mr. Herschel promised to give further attention to the filming of Australian fauna.

Dr. Leach, Messrs. W. Stephen and Lush expressed their appreciation to Messrs. Littlejohns and Herschel for their patriotism in filming the birds of this country. Regret was expressed that other prominent citizens have not afforded similar facilities to cinematographers to work upon the native fauna as Mr. Herschel has done in this enterprise.

Later in the evening Mr. Littlejohns showed a splendid series of lantern slides of the home-life of three species of Dotterels.

Notes and Comments.

There are still some contributors to *The Emu* who use discarded technical names, thereby causing needless editorial trouble in correcting their writings. All members of the R.A.O.U. should secure the Check-List (Second Edition), and use the names given there. Send 12s. 8d. to the General Secretary, R.A.O.U., 168 Latrobe Street, Melbourne, and a copy of the Check-List will be forwarded. It is also requested that contributions to *The Emu* should be type-written; when this is not possible technical names should be written with especial clearness.

* * *

Regarding the new Field-Wren (*Calamanthus winiam*) mentioned in *Emu, ante,* p. 80, through a misunderstanding bird, nest and eggs were described under the name of A. G. Campbell. It should have been under the joint names of A. J. and A. G. Campbell. The correction is hereby recorded. It is hoped that a coloured plate of the species will appear in a later issue.

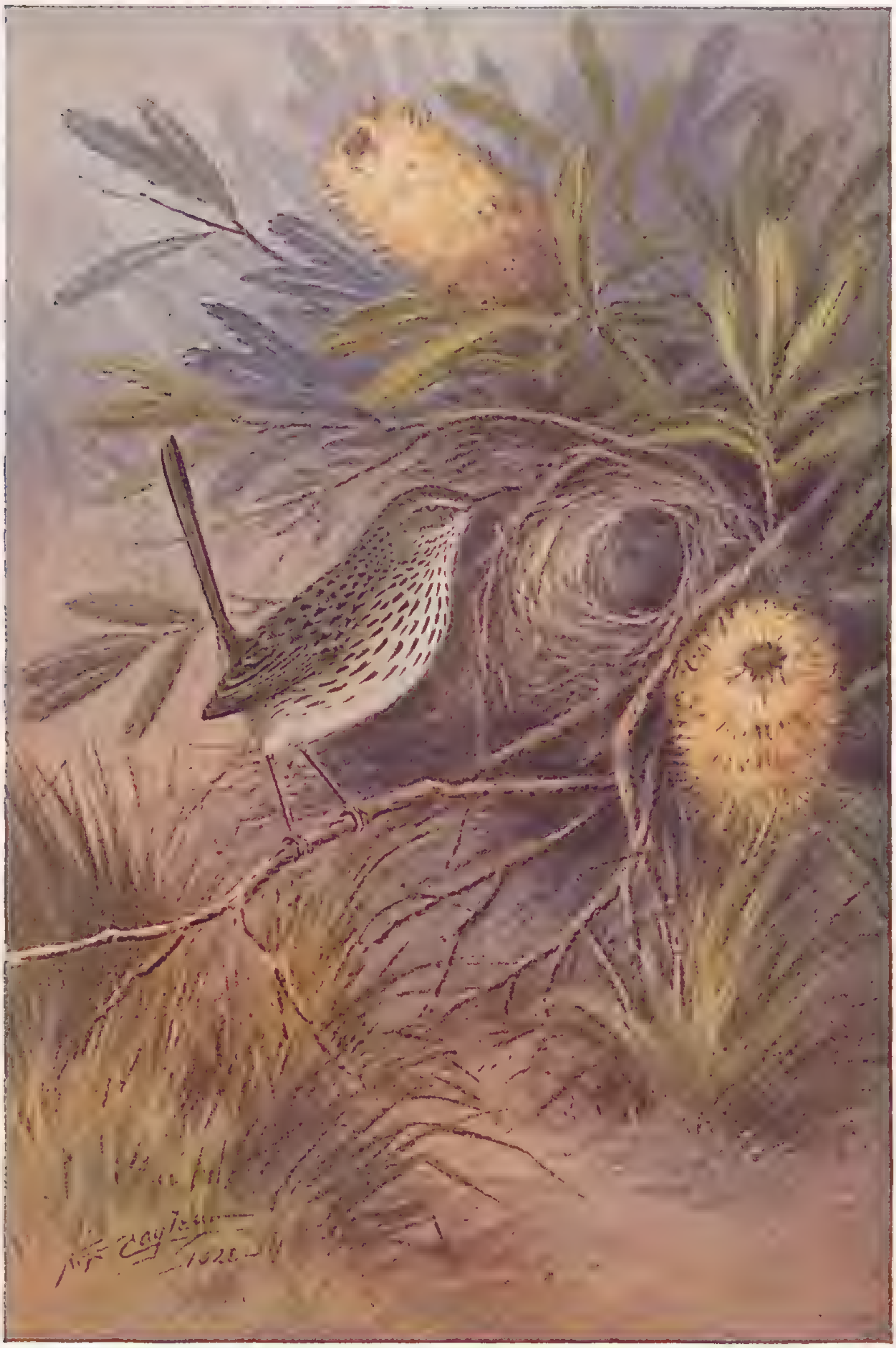
Dr. W. Macgillivray, of Broken Hill, wrote to the Editor of *The Emu* during October, calling attention to the ravages of bird-dealers among the rare Bourke Parrots, and mentioning that an advertisement from Adelaide calling for "Bourkes" had appeared in a Broken Hill newspaper. Representations on the matter were promptly made to Mr. E. B. Harkness, Under-Secretary to the Chief Secretary's Department, Sydney, and on November 9 that active official advised as follows: "I desire to state that the Commissioner of Police has reported that every inquiry has been made in Broken Hill and surrounding district, but that no information could be obtained in respect of any Bourke Parrakeets being sent out of the locality, or of any person being found illegally in possession of the birds. It is added that all efforts will be made to prevent the export of the Parrakeets and that the Police at Broken Hill have been instructed to keep a sharp lookout for persons taking protected birds. The editor of the *Barrier Miner* was interviewed in the matter and informed that Bourke Parrakeets were absolutely protected, and that any person taking or found illegally in possession of such birds would bring himself within the jurisdiction of the law. The editor, in reply, stated that he would communicate with the person who inserted the advertisement and would warn him accordingly, and that no more advertisements would be accepted in this respect."

* * *

Members who have not yet paid the annual subscription (£1 1s.) for the current year are reminded that this is *overdue*, and the Hon. Treasurer (Mr. Z. Gray, 170 Latrobe Street, Melbourne) will be glad to receive it. Please remit promptly, so that the Council may pay its current accounts.

Date of publication of this part of *The Emu*, January 4, 1928.

NATIONAL MUSEUM VICTORIA



WINIAM FIELD-WREN (*Calamanthus winiam*).
Male at nest.

The Emu

OFFICIAL ORGAN OF THE
ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION

"Birds of a Feather."

VOL. XXVII] APRIL, 1928. [PART 4

Discovery of the Winiam Field-Wren (Calamanthus Winiam).*

By A. J. and A. G. CAMPBELL, Melbourne.

(See Coloured Plate.)

ON August 30, 1923, in the "Little Desert" (about 13 miles south of Nhill, or 250 miles north-west of Melbourne), when A. J. and A. G. Campbell and R. J. Oldfield were hunting for a variety of *Acanthiza hedleyi,* this new *Calamanthus* was discovered and a specimen procured.

It is usually unwise to describe a new species on a single specimen. Four years subsequently, however, there came an opportunity again to visit the home of this *Calamanthus,* when many birds were observed, and other specimens, including a nest and eggs, were obtained (by permission of the authorities). The additional material confirmed the species as new to ornithology.

The Little Desert probably runs unbroken to South Australia, about the Coorong. It is a wind-swept tract of low, undulatory sand-ridges clothed with rough vegetation, chiefly dwarf banksia and casuarina, and occasionally stunted eucalyptus near some ancient soak. The botanist will find numerous other kinds of hardy vegetation, not to mention tufts of spinifex and odd grass-trees, besides rarer flowering plants, which flourish in their sandy conditions, on an average annual rainfall of about sixteen inches.

The few other birds frequenting the locality are chiefly *Acanthiza hedleyi,* Tawny-crowned and Yellow-winged Honey-eaters, stray pairs of Hooded Robins, and in the season the Black-breasted Song-Lark, in addition to those the feathers of which were noted under the description of the nest.

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* Described in *The Emu, ante,* pp. 80 and 221.

Reasons why this Field-Wren remained so long undiscovered may be its very local habitat and the great difficulty in procuring specimens. Its position is certainly unique when compared with other southern species.

ADDITIONAL NESTING NOTE.—A. G. Campbell mentions that the Dark Thornbill (*Acanthiza hedleyi*) in the sandy desert south of Nhill appears to live in company with this new-found Field-Wren. Hundreds of acres of this lonely moorland might be searched without revealing signs of either species, but where one was found the other was also present. He quotes a specific instance of this form of symbiosis:

"I was watching a pair of Dark Thornbills as they moved in a given direction in their usual elusive manner, when I distinctly saw one bird enter a fallen banksia bush. Immediately two birds flew out, one a Field-Wren, and this was how I discovered the first nest of *Calamanthus winiam.* It contained three small young with stomachs much distended, and a few black ants walking about them. Some minutes later I caught the mother bird on the nest and made a note of her colours and measurements before liberating her again. Her tail was turned at the tip with much sitting and her squeaking brought the two Thornbills back again. Her nest, nicely situated on the ground among dead banksia cones, was constructed almost entirely of dry, grass-like stems of *Calostrophus fastigiatus,* or rope-rush, and was warmly lined with a mat of feathers. Measurements were: Height, five inches; width, four inches; entrance, about one inch and three quarters in diameter." (Nest, which should be on ground, figured in plate.)

Bronze Cuckoo and Wrens.—A few mornings ago, while in the scrub near the beach, I saw a young Bronze Cuckoo being fed by a pair of Blue Wrens (*Malurus*). The Cuckoo was probably *C. basalis,* but I was unable to get a glimpse of the basal portion of the tail; the part of that appendage which showed was very distinctly marked with the Cuckoo stripes of brown and white. The bird's upper surface showed none of that lovely shining green tint so conspicuous in the adult, but appeared to be brown only. This young individual did not indulge in any querulous cries for food, but merely sat quietly on a low branch and took what was offered; neither did the foster-parents utter any sound—in fact, the party seemed under the influence of "a conspiracy of silence."
—H. STUART DOVE, Devonport, Tas. (Feb. 1, 1928).

Notes on the Powerful Owl.

By DAVID FLEAY, Ballarat, Victoria.

THE fine Powerful Owl (*Ninox strenua*), our largest nocturnal bird of prey and a dweller in the deep forest gullies of Queensland, New South Wales and Victoria, is, strangely enough, still a bird of little known habits. For a long period I have watched these wonderful birds, which, like all quiet-winged hunters of the night, have for me a special charm. I was never fortunate enough to get into the forest during the nesting period for any time, and never expected to obtain a live specimen of the Powerful Owl. But fortune smiled and "Ferox," a young bird of great promise, is now in my aviary.

This young Owl was taken from a hollow tree in the Pyrenees, near Avoca (Victoria), in December, 1927. I had read accounts of the great strength and ferocity of the species, but I did not appreciate the point acutely until this young bird drove its talons into my back on several occasions when being photographed. The huge wings and strong, hooked beak are also formidable weapons.

As is well known, the Powerful Owl belongs to the Hawk-Owl family, in which the facial disc is indistinct, and of which the familiar Boobook is another member. Both these birds are clearly marked off from the typical Barn-Owl group, with the pronounced facial disc. The Powerful Owl measures some 24 inches in length from the prominent beak to the tip of the tail-feathers, and from tip to tip of the big wings it possesses a spread of between four and five feet—four feet three inches in the case of "Ferox." It can thus be readily understood that, after the Wedge-tailed Eagle and Sea-Eagle, this Owl holds the honour of being the largest and most powerful bird of prey in our continent.

In general appearance, plumage and also in one of its calls this large Owl reminds one of an enormous Boobook, and probably it is closely similar in its breeding habits. Nesting in August or September, from two to three rounded white eggs are laid, the largest of which (described from a clutch by the late H. L. White) measured 2·29″ by 1·94″. The nesting site is a large hollow limb or spout in a forest eucalypt; but only on the rarest occasions have these positions been discovered and that keen oologist, H. L. White, long despaired of ever obtaining a clutch.

In "Ferox's" nursery two Owlets were reared. Apparently, as in the case of Boobook nestlings, the young birds are capable of leaving the home hollow when two months old. In general appearance the adult bird possesses an under-surface whitish barred brown. The wings are dark brown barred with paler colour and the upper part of the head is brown streaked with white. The markings suggest in a way the plumage of a Plymouth rock fowl. Three fine mounted specimens are to be seen in the Australian section, National Museum, Melbourne; two are adult specimens and the third is a young bird in immature plumage. The huge beak, which snaps vigorously when the Owl is angry, is rather prominent, whilst the yellow-irised eyes are most attractive in their wonderful and varied expressions.

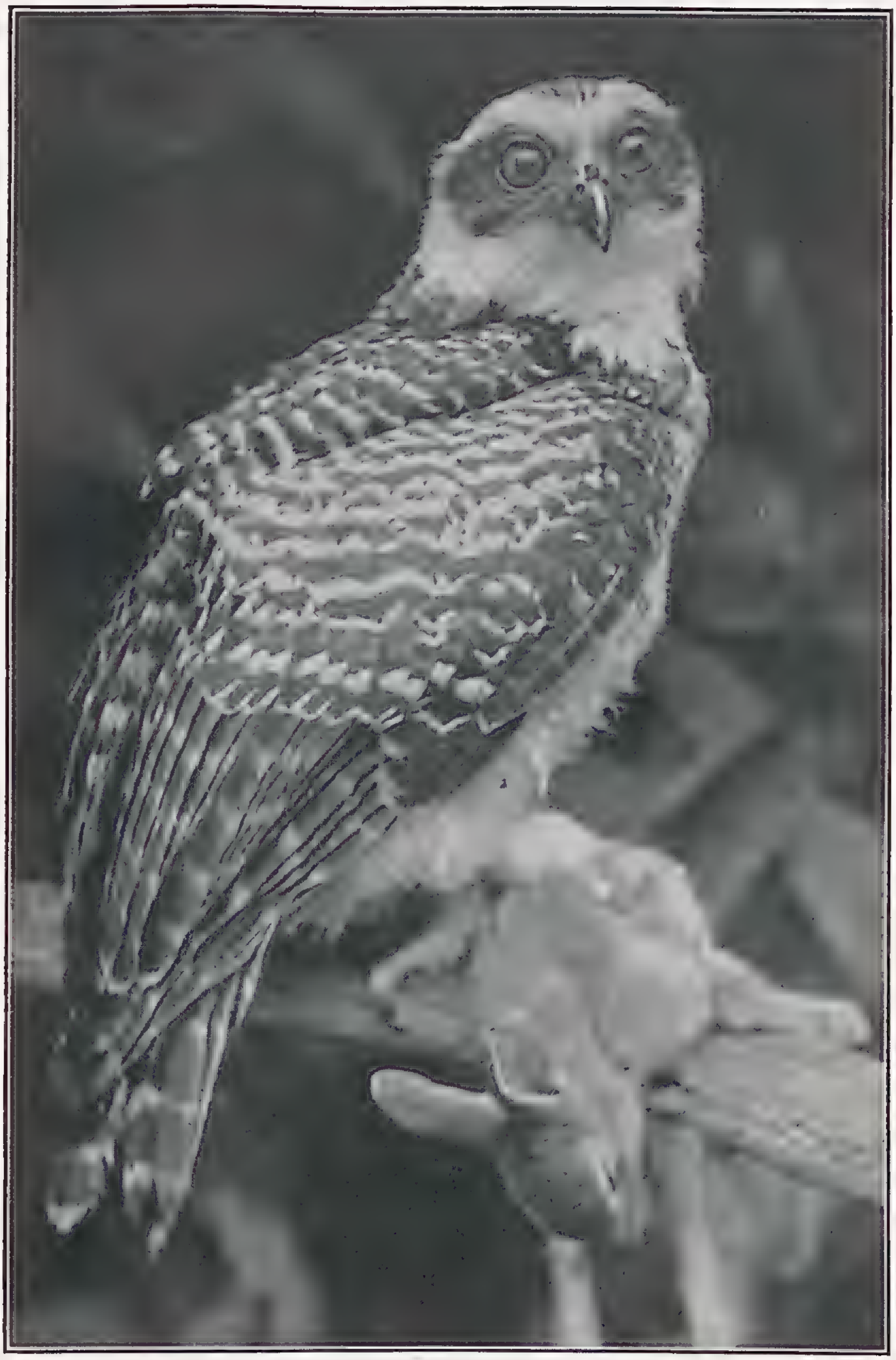
The young bird, in common with all young Owls, is first covered with soft white down, but on leaving the home hollow the barred wing and tail feathers show distinctly and brown feathers make their appearance on the crown. The under-surface and neck remain downy and white for a longer period, giving the young Owl a superficial resemblance to the Sea-Eagle. The eyes are set in the radiating, brown, hair-like feathers which give them additional attractiveness, in similar fashion to those of the Boobook. The stout, feathered legs are provided with four strong yellow toes, which, as in the Bookbook Owl, are placed invariably two on the fore-part of the branch and two grasping the rear. These toes are provided with keen, curved talons, with which the bird grasps its prey and attacks its enemies. Very often the Owls spring talons first at an intruder, striking with the powerful beak and at the same time using the wings as powerful buffeting agents. Their captures are treated in a similar fashion and killed by a wrenching action of the hooked beak at the junction of vertebral column and skull. In fact, most smaller mammals, such as the allied and dusky-footed swamp rats, need no killing once the huge talons hold them in a terrible grip.

Being nocturnal and a swift hunter which picks its prey up on the wing, the Powerful Owl is a valuable rabbit destroyer, as is manifested by disgorged pellets under the "home" trees.

The young bird, "Ferox," as is usual with young Owls, is notable for his wonderful expressions. When excited the down on his head bristles, his wings are raised, and his great eyes glare as the beak is loudly snapped. One remarkable feature is his baby call—a trilling whistle very like that of the Boobook and Barn Owl nestlings, but not quite as shrill. Such a call coming from a big bird sounds most amusing.

Like baby Boobooks, "Ferox" believes in taking stock of the world from all angles, and if anything puzzles him he winds his head round and round scores of times until quite satisfied that the object has been considered from every angle.

The Powerful Owl remains in heavily forested country where the gullies are quiet, and a pair of the birds or occasionally a lone specimen range up and down various gullies



YOUNG POWERFUL OWL, SHOWING UPPER SURFACE.

Photo. by D. Fleay.

NATIONAL MUSEUM VICTORIA

in the vicinity of their "camp." The latter consists very often of a blackwood tree standing in a gully, but it is quite common to find the birds perching in a small stringy-bark eucalypt. Scattered about on the ground beneath the worn branches of the perching tree (on which the birds rub their beaks and talons), are bones from broken-down pellets and also large examples of the latter lately disgorged. These pellets are often up to three inches in length and very thick. I have watched "Ferox" taking them from his beak in his talons and examining them drowsily. Rabbit remains seem to be most common in the Victorian localities in which I have found these objects, but occasionally the fur of ring-tailed 'possums and greater or lesser flying phalangers is also evident. The feathers of a Crimson Rosella were scattered beneath a tree in which I watched a Powerful Owl some days previous to the time of writing, and a nearby log was evidently the spot where the bird had held a rabbit under his talons and eaten it piece by piece.

The birds evidently possess more than one camping place and probably perch irregularly in these recognized places. My reason for stating this is that at dusk on various occasions we have remained at one home tree and called the birds by means of a loud cry (described later), which has generally been answered from distant parts of the same or adjoining gullies. I have noted that the birds are active in the dusk and dawn of moonless nights, whilst moonlight nights are more favourable to their movements. Often in the deep gloom of late winter afternoons in the gullies I have heard the Owls calling loudly before daylight had gone.

The amazing scream uttered by this bird, which has been heard by ornithologists on various occasions, has startled many a man long used to the life of the bush. Some time ago the caretaker of Cave Hill Pleasure Resort (near Beaufort, Vic.), told us of a most awful screech ending in a moaning sound which had almost caused him to collapse with fright on the night previous to our arrival. He was lying in his bunk at the time, quite alone in a little tent situated in a secluded gully. The stillness was intense and he was reading by the light of a candle stuck in the usual bottle, when the weird, unearthly sound shattered the silence and incidentally the unfortunate man's nerves! It came, he stated, from a tree immediately over the tent and was akin (in his own words) to "a number of women being murdered." The next night we watched for the culprit, who was evidently in the habit of frequenting that part of the gully, for the tent had just been erected. However, our visitor quickly flew away when an acetylene lamp shone in his direction, though at first the light confused the bird to such an extent that it blundered into the foliage on taking off. Several evenings later the scream came again, but was some distance down the gully. The caretaker's dog, which was now living with its master, bristled all over and barked for some time during the night.

At Upper Beaconsfield (Vic.), the birds have been heard by fishing parties on the Cardinia Creek and I know of a perching tree in the same locality.

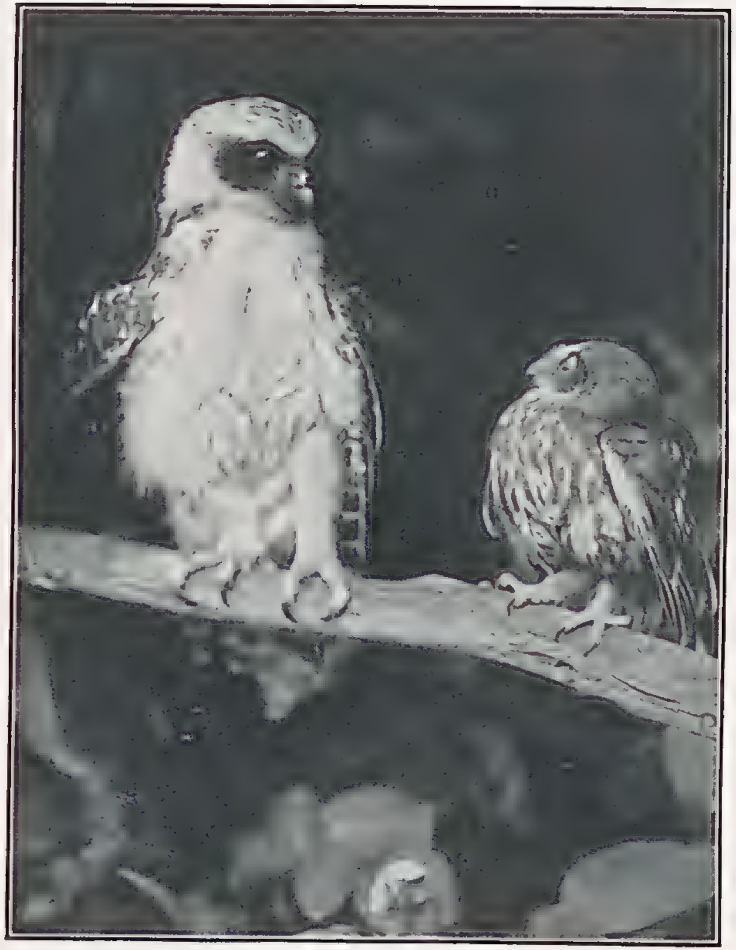
Lately a wood-cutter in the Korweingebooroo district (near Ballan, Vic.), told me that a local resident was riding his horse along a lonely bush track one night when an unearthly and startling screech lasting for several seconds came from a great tree above his head. The result was (according to my informant), that the horse bolted, bearing its alarmed rider far away. This same horseman had previously scoffed at the tale of a eucalyptus-oil distiller—the local musician—who had been so terrified by the sound when returning from a dance one early morn, that he spent several days in bed after rushing home and falling suddenly through the open doorway —to the detriment of his banjo!

Strangely enough few bush people have any idea as to what manner of creature is responsible for the startling sound, though all give similar descriptions as to its alarming and unearthly nature, comparing it to the screams of a number of women being brutally strangled. Many times, with friends, I have kept all night vigils in these localities, but I only succeeded in hearing the sound at a distance. However, one can safely say that the bush knows no more terrifying noise in its quieter hours.

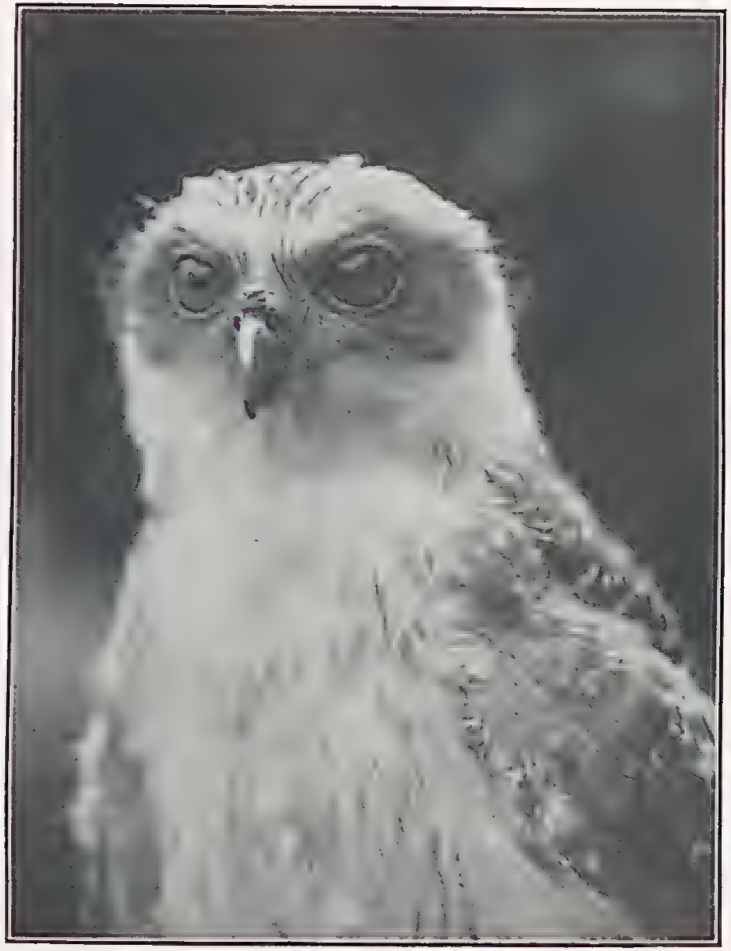
In addition to the scream the Powerful Owl possesses a commoner call analogous to the "Mopoke" of the Boobook Owl. It is a far-sounding, double-syllabled cry, with emphasis on the second syllable. In fact, the sound sometimes reminds one of the "Moo-moo" of cattle. I have often heard the double call in the forest, especially just at dusk and again in the dawn, and to me it suggested "Woo-hoo!" uttered in a deliberate-sounding tone which could be heard afar in the quietness. At all times of the year the call is used, but notably in frosty weather, and invariably is it heard at dusk and dawn.

On many occasions the big birds were brought into overhead trees when I gave rather a poor imitation of the call, and thus were in full view, and actually they have given voice to the slow "Woo-hoo" at such close quarters.

In August (1927), we were camped out in cold, snowy weather right away in a deep, heavily-timbered gully near Daylesford (Vic.), and just at dusk one evening the far-away call of a Powerful Owl came faintly to our ears. I sent a few greetings back—poor it is true—and gradually the resounding call grew closer. The big bird was evidently "taken in" and



"FEROX" GAZES DOWN ON ADULT BOOBOOK OWL.



"FEROX" AT CLOSE RANGE.

Photos. by D. Fleay.

might even have expected to find that I was the "lady" Owl! The forest was very still and the mysterious sound blended well with our wild surroundings. At length our visitor was within 50 yards of the camp-fire, and was so puzzled that he broke his regularity and uttered one syllable too many! There we called back and forth at one another for quite a time, until the Owl gave it up and silence reigned once more.

On another occasion at Mt. Cole (near Raglan, Vic.), we were enjoying a midsummer camp, and a Powerful Owl which we called up at dusk perched above our heads in a dry tree and moved his head from side to side in true Owl fashion, eyeing us with great curiosity. At length, taking it into his head that he had more urgent business up the gully, he departed, giving us a fine view of his wide wing-spread as he floated silently away into the gathering darkness.

Long ago, on an extremely frosty night, I woke with the first signs of dawn to find my unfortunate feet projecting into the atmosphere, and became aware that a pair of Powerful Owls were calling back and forth to one another, one to the south and one to the north of our earthen resting place. The sounds were remarkably intensified on that frozen early morn, and remain clearly in my memory as a lasting impression.

The Powerful Owl is cleanly in its habits and probably on most mornings at dawn flutters in the still gully pools cleaning the great toes, which as often as not are covered with the blood of the latest victim. This habit is strong in the young bird, "Ferox," and he is very particular as to his toilet.

And so this nocturnal king of the bush has a full right to be considered a bird of mystery, for "the great brass eyes"—as a bushman called them—miss little of the creatures that pass in the night and are in turn little seen. I hope that it will be my pleasure to sleep again in their haunts—to watch the big flying phalanger issuing from his home tree above and to hear the great Owls calling in the night. It is indeed small wonder that the terrifying screams which have echoed through the bush, in the past, caused the frightened natives to regard the originator of the dread sounds as a spirit of ill-omen wandering in the dark.

Bird-Life of the Bunker and Capricorn Islands.

By W. MacGillivray, M.D., C.F.A.O.U., Broken Hill, N.S.W.

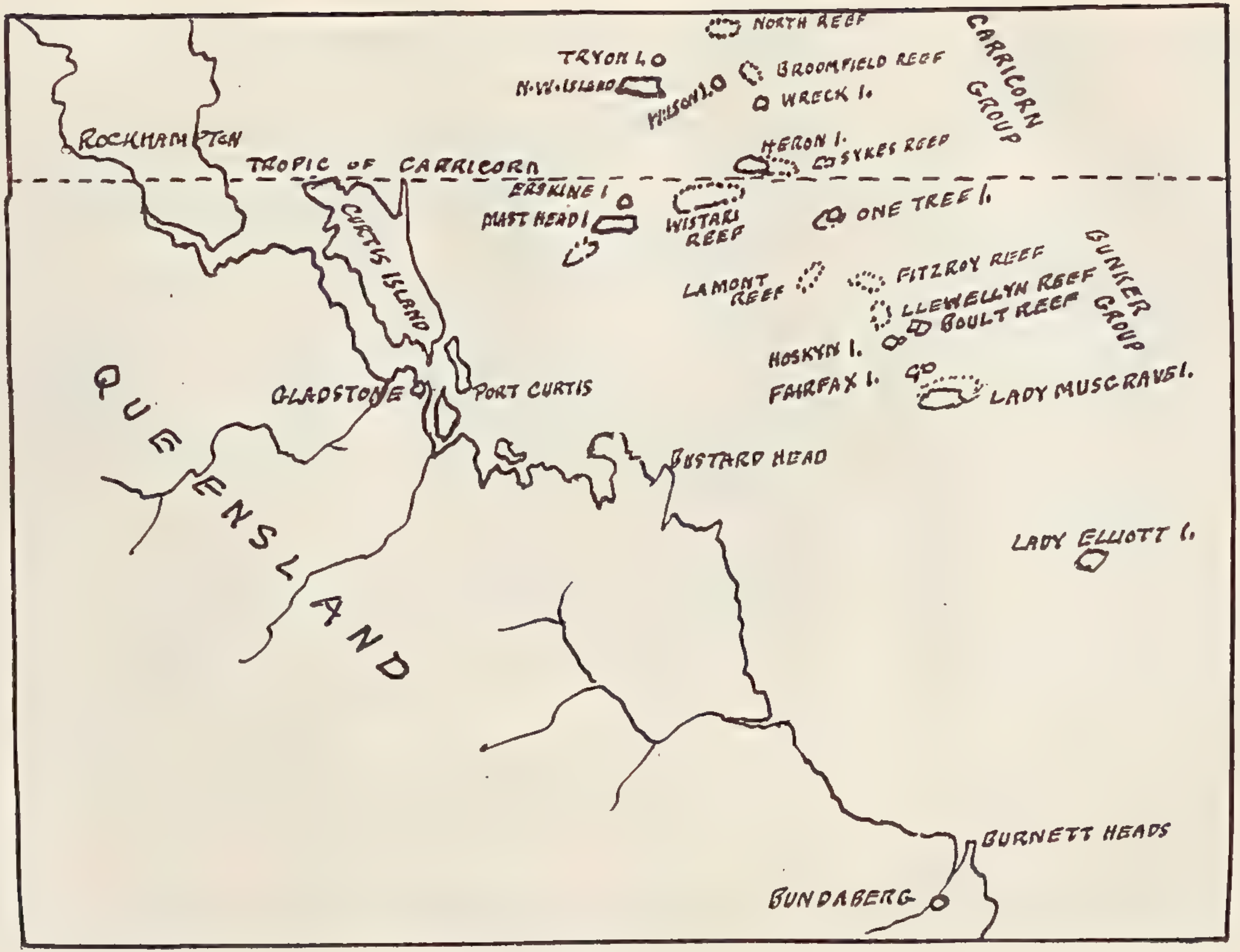
Desiring to become better acquainted with the birds inhabiting or visiting the Bunker and Capricorn groups of islands off the coast of central Queensland, I joined, in Sydney, a party organized by Mr. E. F. Pollock of that city with the intention of spending about a week on each of three islands of these groups, and from these as bases of paying day visits to as many more as time and weather would permit.

These islands form the southern end of the Great Barrier Reef, which skirts and guards the eastern coast of Queensland from the Pacific Ocean for a distance of twelve hundred miles, commencing in the north at Bramble Cay and ending at Lady Elliott Island immediately to the south of the Bunker group. Most of the islands are of the nature of pseudo atolls; that is, they form portion of the edge of a more or less circular coral reef encircling a lagoon. Apart from these islands there are many coral reefs more or less extensive, some showing sandbanks which are either exposed or covered at high tide. Most of the islets were vegetated, the larger ones presenting two well marked divisions—an outer zone immediately above high tide mark of sand binding and reclaiming grasses and trailing plants and a few shrubs and trees, and an inner area of forest trees, in some instances fifty or sixty feet high, more or less open or converted into a jungle by smaller trees and trailing and climbing plants.

Our party consisted of nine ladies and twenty-three men, including cook and steward. Our objects varied: Study of birds, plant-life, insects and all the wonderful creatures of the reef engaged the attention of a few; many were ardent photographers; others came chiefly for the fishing, and all came for a healthful holiday amidst romantic surroundings.

Leaving Sydney on the 13th November, 1927, we journeyed by train through Brisbane to Bundaberg, the centre of a prosperous sugar-growing and milling district on the Burnett River, Queensland, arriving there at 8 a.m. on the 15th November. Everything looked fresh and green as the annual rainfall is over eighty inches and an inch and a quarter had fallen in sixteen minutes on the previous day. A walk through the local botanic park and town revealed well-kept green lawns, gorgeously foliaged shrubs and trees and many conspicuously flowering plants. The afternoon was occupied by a motor drive of twenty-five miles into the surrounding country, along well-kept roads bordered by fields of sugar-cane at all stages of growth.

Three boats were at the wharf waiting to take us out, namely, the *Warrior*, a commodious and well-appointed



Capricorn and Bunker Islands.

auxiliary yacht, at other times employed as an excursion boat on the Brisbane River, the *Skandia* and the *Coolum*, auxiliary cutters engaged in the local fishing industry. We embarked at 9 p.m. and went down the river, but encountered such a heavy sea as we emerged from the mouth that we were obliged to turn back and seek shelter in the river till morning. Soon after daylight we landed for breakfast at an hotel at Burnett Heads. A Red-backed Sea-Eagle (*Haliastur indus*) was patrolling the shore line. Many Sharp-tailed Sandpipers (*Erolia acuminata*) and Red-kneed Dotterels (*Erythrogonys cinctus*) were seen on a mangrove backwater. Numbers of Red-capped Dotterels (*Charadrius ruficapillus*) were along the beach. There also crabs and that curious fish *Periophthalmus* were swarming. A few Eastern Curlews (*Numenius cyanopus*) and other waders not identifiable were about the shore also. Several Rainbow-Birds (*Merops ornatus*) had their nesting-burrows in sandy soil near the hotel.

On board again, a fresh breeze and heavy swell soon put a number of the party out of action for the rest of the voyage of 75 miles to Lady Musgrave Island, No. 1 of the Bunker group, which was to be our headquarters for the first week. On our voyage we passed Crested Terns (*Sterna bergii*) and White-capped Noddies (*Anous minutus*) searching the sea for shoals of fish, hunted to the surface by larger carnivorous fish. Brown Gannets (*Sula leucogaster*) flew by on widely-extended wings. Flying fish rose from the surface and skimmed away well above the water on vibrating and glittering wings—changing their course three or even four times, each time almost at right angles—before returning to the sea. A Gannet caught sight of one and gave chase, capturing the unfortunate fish just as it was returning to the water. A sea-snake basking on the surface of the water was passed. Many dolphins (*Delphinus delphis*) accompanied us, disporting themselves about our bows. One could not but marvel at the effortless way in which they could shoot ahead for any distance and then double back to the boat again; they seemed to enjoy the sport. After four in the afternoon the trees and later the sandy shore and reef of Lady Musgrave Island were seen. We soon found the narrow passage through the reef into the lagoon. The bed of the lagoon being freely strewn with patches of coral, we had to be careful in approaching our anchorage, as the setting sun in our eyes made it difficult to see the shoals. White-capped Noddies, Silver Gulls (*Larus novæ-hollandiæ*), Brown Gannets and Bridled Terns (*Sterna anætheta*) welcomed us to the island, and two fine Lesser Frigate-Birds (*Fregata ariel*) surveyed us from above.

The vegetation of this island has been profoundly altered by the introduction of goats. A few were left on the island many years ago and there are now from 300 to 350 at least.

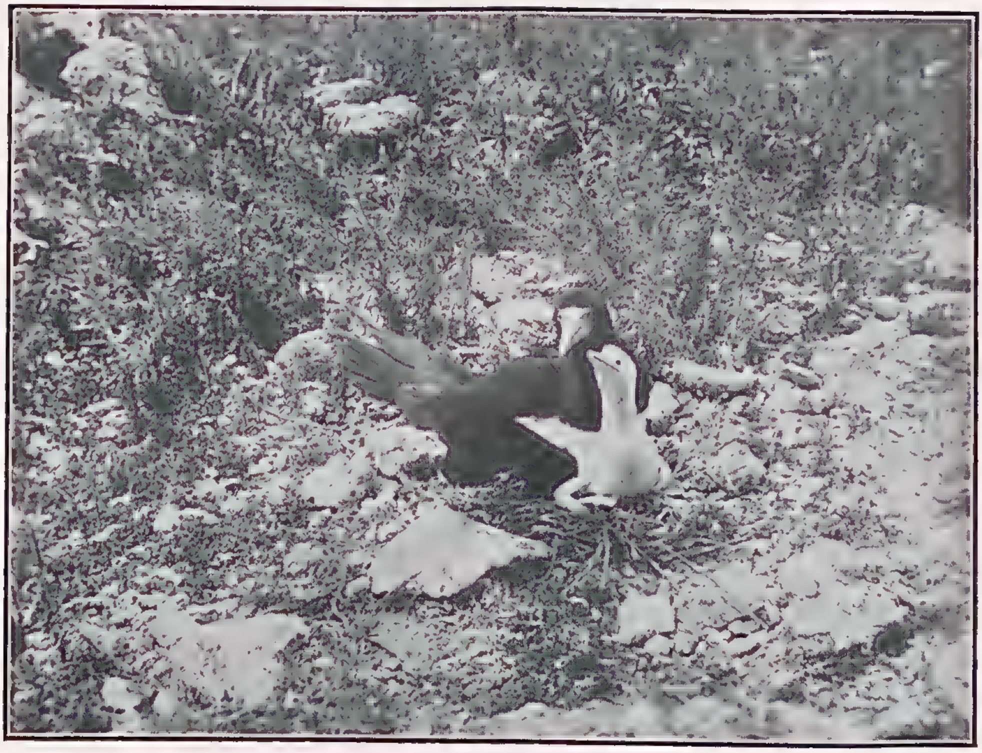
All ground vegetation and all shrubs and smaller trees have vanished and the trees that remain are all cropped to a height of about four feet. Only four species of trees survive—*Pisonia brunoniana, Ficus opposita, Pandanus pedunculatus* and *Casuarina equisetifolia,* and one shrub (*Tournefortia argentea*), of which two miserable specimens are still clinging to life. The only food left for the goats are the leaves that they can reach and the dry leaves that constantly fall from the *Pisonias*; and when the Noddies start to nest even these dead leaves are denied the goats, for the leaves are retrieved by the Noddies almost as soon as they fall. So hard pushed are the goats for food that they have started to eat the bark from the *Pisonia* trees. This means that they must in time kill the remaining vegetation and then perish themselves.

On the 19th we paid a visit to Hoskyn Island, No. 3 of the Bunker group, which is about fourteen miles distant in a northerly direction. We passed No. 2 on our way, Fairfax Island. Hoskyn Island is in two portions: a larger, well-wooded one, separated from the second smaller portion by about a quarter of a mile of reef, which is uncovered at low tide. It was on this second portion that Brown Gannets were nesting in great numbers. These were inspected and photographed. Leaving my cameras I went back to the larger island for more films, and I had barely time to return and rescue the cameras before the tide came across the intervening reef.

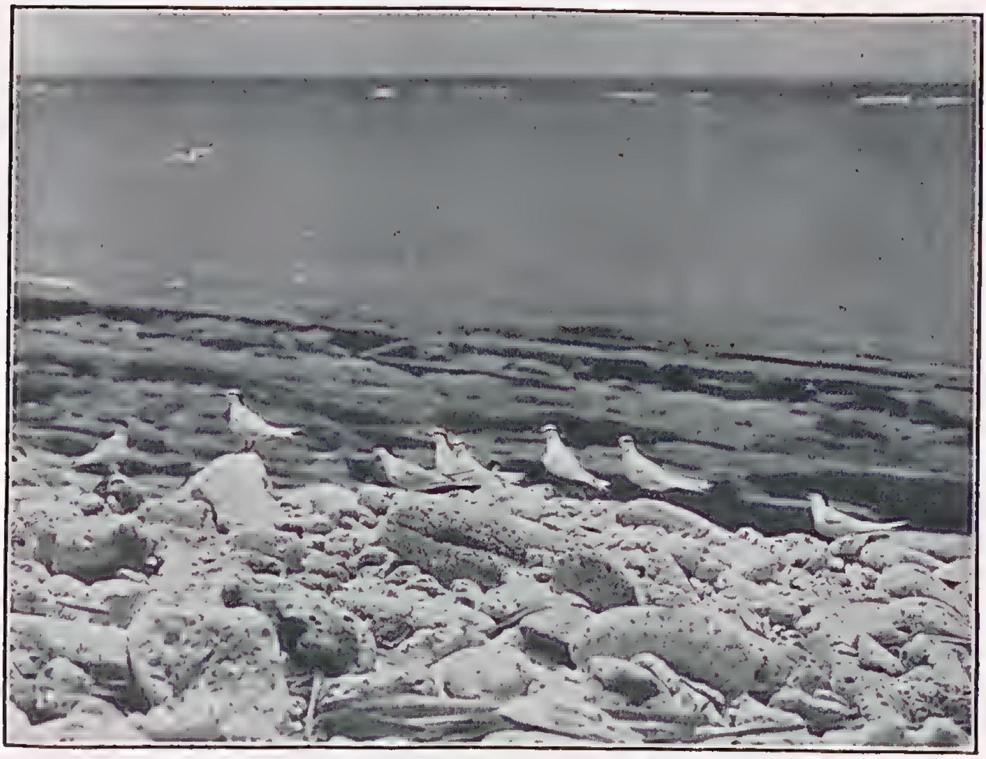
On the 20th, after breakfast, all went aboard the *Warrior* for Fairfax Island, which is plainly visible from our camp, being only three miles away. We landed from the edge of the reef in dinghies and waded over the coral to the south-western portion of the island—a long, narrow sand-bank covered with sand-binding grass, *Spinifex* and *Tournefortia* bushes, ending in a group of *Casuarinas.* Several Gannets (*S. leucogaster*) were flushed here; they had young ones sheltering under the *Tournefortias.* Following the sand-bank back to the main part where numbers of Gannets were flying about, we found that the centre was occupied by *Pisonia* and fig-trees, with much undergrowth and the usual bordering of *Tournefortia* and *Scævola,* grasses and trailers. Gannets' nests were scattered around the island and mostly contained small young. Twenty Frigate-Birds were hovering overhead. As numbers of birds were seen over the eastern islet we hurried across nearly half a mile of coral whilst the tide was out. The coral was very rough and crumbly in places, and locomotion was difficult. The islet when reached had a very rough and steep shingly beach. We found this islet divided into three parts—a central wooded one containing a water-hole about 200 yards in length in the middle with a bordering of *Pisonia,* fig, *Casuarina* and *Pandanus* trees, smaller trees and shrubs with a rank undergrowth of *Ipomœa, Wedelia, Abutilon* and other plants. The trees were occupied by White-capped Noddies and the ground was undermined by Shearwaters. The western end was a large rocky amphitheatre which had some time previously been worked for guano; all the trees had been cleared off and nothing was left but rough coral rock thrown into tumbled heaps and walls and ridges, which were now covered with grass and trailing plants, stunted figs, nightshade, *Abutilon* and *Oxalis.* Everywhere were nesting Gannets and one portion of the rocky rim was occupied by a few breeding Crested Terns. The southern sandy extremity I was unable to examine as the tide was coming in, but Dr. Giblin reported that it was also occupied by Gannets.

On the 22nd we left Lady Musgrave Island. Our route took us past Fairfax and Hoskyn Islands; we passed the Boult reef, then Llewellyn reef, which is larger and has a big sand-bank on it. Many Reef-Herons in both phases of plumage were on these reefs. The Lamont reef was passed on our left, after which we skirted a very long reef on our right with many big "nigger-heads." Then we came to Heron Island, well named from the number of these birds that frequent the island and the adjacent extensive reefs. We passed between Heron Island and the Wistari reef, a sheltered passage where we crossed the Tropic of Capricorn. Wreck Island came into view away to our right; then North West Island (our destination) loomed above the horizon ahead. The tide was out when we came alongside the reef, which we skirted. Many turtles were seen and several fish ("long toms") were disturbed; they leaped out of the water and skipped away over the surface in a semi-erect position, touching the water at intervals with the tail. We anchored opposite the jetty outside the reef, as the tide was out; dinghies took us to the reef and we waded ashore, finding a camping-place to the left of the turtle factory, which had been working for about three weeks before our arrival and is still under the management of Mr. Christopher Poulsen, who lives on the island with his wife and children during the nesting season for turtles.

Our camps were pitched on the following morning. North West is the largest island of the Capricorn group; it has a coast-line of nearly three miles and a densely wooded centre. The principal tree is the *Pisonia,* some of which are fifty feet high. The fig (*Ficus platypoda*) grows chiefly on the rocky areas of the island, and there are many fine specimens with large-buttressed trunks and aerial roots. The fruit becomes bright yellow and ripens red and soft. There are also smaller trees and a tangle of a trailing composite. An earlier wet season has had the effect of producing a more vigorous growth of vegetation than when we were on the island in 1925. Locomotion through the island is made more difficult by the loose, friable nature of the soil and the undermining work of



BROWN GANNET AND YOUNG, FAIRFAX ISLAND.



CHIEFLY BLACK-NAPED TERNS, WILSON ISLAND.

Photos. by W. MacGillivray.

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the Shearwaters. Cats are wild on this island and live on the Shearwaters and Fowls (*Gallus ferrugineus*), which also are in a feral state and in goodly numbers.

It is a pity that domestic cats gone wild cannot be exterminated, as they are always most destructive to bird-life. On the mainland everywhere the ordinary household cat is one of the worst enemies of useful insectivorous birds. Goats, too, were set free on North West Island eighteen months ago by the turtle-hunters, who have not seen them since. If allowed to increase as they have on Lady Musgrave Island, the vegetation will share the same fate in a few years' time. Goats have also been introduced to Hoskyn and Fairfax Islands and are increasing, but have not as yet made much impression on the vegetation.

On the 25th November several of us made a day trip to Tryon islet which is only a few miles from North West Island. The vegetation, although much smaller, is luxuriant and of the same character. This islet seems to be a favourite nesting-place of the loggerhead turtle (*Caretta caretta*). The trailer *Wedelia bicolor,* with *Ipomœa grandiflora,* made a hopeless tangle in many places. The latter plant was unusually luxuriant, festooning the tallest *Pisonias* and having many of its leaves a foot in diameter. Shore and land bird forms were plentiful. As we returned to North West Island five fine Frigate-Birds flew overhead, escorting us over the reef, like a squad of aeroplanes.

On the 1st December we moved again, shifting to Heron Island. Another turtle-soup factory is on this island, lying idle in charge of a caretaker. Our first night was spent in the factory, where we rigged our bunks; some elected to remain there, while others pitched tents along the shore. A fine big *Pisonia* almost alongside the factory supported a nest of the White-breasted Sea-Eagle (*Haliæëtus leucogaster*), containing a young bird. The island was well-wooded, with similar trees and shrubs. One small tree, *Cordia cordata,* with salmon-coloured flowers, we had not seen on any of the other islands. This island is infested with rats; we saw one almost on arrival in the factory and they became common objects afterwards.

On the 3rd December we went over to Wilson Island, the centre of which is occupied almost wholly by *Pandanus* trees, with odd specimens of *Pisonia* here and there. Two young coco-palms, the first we had seen, were looking quite healthy; they had probably germinated from nuts that floated to the island. Many nuts were seen on the shores of nearly all the islands, but the contents in most of them were rotted. We went around the island looking for nesting-places of the Roseate and Black-naped Terns noted in 1925, but the birds had shifted further round and were only commencing to nest.

We embarked again at 1.30 p.m. and made over to Wreck Island, so called by Captain Blackwood of the *Fly,* in 1843, when there was the wreck of a whaling vessel on the reef. When he landed he found the names of the shipwrecked people carved on some of the trees, with dates from June to November, 1831, one name being that of a woman. We were unable to land owing to a dangerous surf breaking on the reef. The island is marked by a tall coco-palm overtopping the other vegetation. We returned to Heron Island, intending to go over to Masthead Island next morning, but the weather was unfavourable and we postponed our visit; instead, we went later in the day to One Tree Island in the *Warrior,* our larger boat. The tide was low and the reef all exposed, and we could not find a way into the lagoon which was a large one; but as many birds could be seen hovering over the island we resolved to visit it again in the smaller boat. On the reef were the remains of a large vessel. We returned to our camp on Heron Island and on the 5th December made off to Masthead Island, the nearest of the group to the mainland and almost as large as North West Island. It is well wooded and resorted to for nesting purposes by White-capped Noddies and Shearwaters in countless numbers. Nearing it we passed quite close to Erskine Island, small and wooded. We skirted the Masthead reef for some time till we got to the lee side of the island. The landing was rather rough on account of the swell, and we walked over a long stretch of exposed reef to the beach near a point where great numbers of Crested Terns were nesting. We left our gear and luncheon material under a shady *Tournefortia* on the outer border. Gulls and Bridled Terns were crying excitedly about us in numbers. Our time was occupied in photographing the rising and settling of the breeding Terns. We were made acquainted with the coastal laburnum *Sophora tomentosa,* which seems to be confined to this island; it has pretty, velvety, pinnate leaves exhaling an aromatic odour. We returned to Heron Island soon after lunch and revisited Masthead Island on the following day, landing again at about the same place. Dr. Giblin and I went up to a second nesting-place of Crested Terns at the eastern end of the island. Within the outer zone of vegetation was a leguminous trailing plant with yellow, pea-like flowers, *Vigna lutea,* which we had not seen on any of the other islands. After taking some photographs and collecting a few botanical specimens we made our way back for lunch and later to the boat. In the evening, after tea on Heron Island, a walk around the beach enabled my wife and me to count fifty-four nesting turtles (*Chelone mydas*).

On the 7th we made an early start for One Tree Island in our smaller boat. We entered the lagoon on a falling tide and when approaching the island noticed a lot of sentinel-like, dark birds lining the beach. My hopes were high that we had discovered a nesting-place of the Frigate-Birds, but I was soon disillusioned when they resolved into Little Black and Little Pied Cormorants. Waders were plentiful on the shore and higher up were numbers of Bridled, Crested, Roseate and Black-naped Terns. The island is a small one, with a rough and steep shingly beach at high-water mark of worn coral and shells, with a wide margin of dead coral sloping to the edge of the reef. The lagoon is three or four miles in length, with an enclosing reef, a large sand-bank on its northern side, and many patches of coral strewn over the floor. The island itself is undulating, covered with a low-growing association of grass and trailing, night-flowering convolvulus, a trailing pea, *Canavalia obtusifolia,* and other plants, all sloping to a central brackish pool surrounded by a border of a succulent, pink-flowered plant, *Sesuvium portulacastrum.* Three clumps of trees, one of *Pandanus* and two of stunted *Pisonia,* are conspicuous features. The *Pandanus* clump supported a very large nest of a pair of White-breasted Sea-Eagles. J. B. Jukes, naturalist of the survey vessel *Fly,* was the first—and last previous to our visit—to land upon this island for scientific purposes. This was on the 7th January, 1843, as related in his *Voyage of H.M.S. Fly.* He describes the central pool and the pink-flowering succulent surrounding it, and explains the naming of the island. Upon landing, he states, the tree so conspicuous from the sea resolved itself into a clump of *Pandanus* which supported the large nest of some bird of prey. This note causes one to wonder if the same pair of Sea-Eagles is still in possession.

On returning to our boat we went on board and tried to make our way out, but soon found that the falling tide had imprisoned us within the lagoon. We made the best of it and put in the rest of the day on the island. Also, we spent an uncomfortable night on the boat until the morning tide enabled us to go over the reef and make back to Heron Island. On the way we met the other boat, which had been sent out to look for us. We were soon busy packing up for our final move and on the 9th made an early start for Gladstone, where we entrained for Brisbane. We arrived there early on the following morning and had time for an early breakfast before leaving by the Sydney express for southern Australia.

Detailed notes on the various birds follow:

Bar-shouldered Dove (*Geopelia humeralis*).—Both seen and heard repeatedly on Lady Musgrave and North West Islands. One nest in a *Tournefortia* bush on the latter island contained one egg.

Banded Landrail (*Hypotænidia philippensis*).—Owing to the absence of undergrowth on Lady Musgrave Island, several nests of this species were found under logs and coral rocks, and one in the hollowed base of a *Casuarina.* The birds were also on North West Island, Tryon Island and Heron Island, where Dr. Pockley found a nest in the grass made of grass and containing six eggs. It was an open, cup-shaped nest, six inches in diameter by two and a half inches deep.

Wedge-tailed Shearwater (*Puffinus pacificus*).—Vast numbers of these birds resort to the larger islands for breeding purposes, and whilst we were on the islands they were mating and preparing their burrows for the reception of the single egg. I have already (in Vol. XXV, Part IV, of *The Emu*) described in detail the manner of their courtship and mating as observed on North West Island in 1925. Lady Musgrave Island differed from the others in that all the undergrowth had been cleared off by goats, so that the Petrels (Shearwaters) could fly off from their burrows from any part of the island, whereas on North West and the other islands they have to find their way out along beaten tracks to the edge of the vegetation before taking wing. Before daybreak every morning these pathways are crowded with birds hurrying out as though their lives depended upon their doing so in as short a time as possible. Mr. P. A. Wright, one of our party, who is used to counting sheep, essayed to do the same with regard to these birds. He estimated that they were passing out at the rate of 500 per minute and this lasted for an hour. When one considers that there are from fifteen to twenty of these paths leading out from North West Island, and that half of the birds remain behind in the burrows, some idea of their numbers may be gained. Besides Lady Musgrave and North West Islands they were nesting also on Hoskyn, Fairfax, Tryon, Heron and Masthead Islands.

Lesser Frigate-Bird (*Fregata ariel*).—Two of these stately birds were sailing over Lady Musgrave Island when we arrived there. Twenty were counted circling over Fairfax Island, where there is a very large colony of Brown Gannets (*Sula leucogaster*). Our time on this island was very limited on account of about a mile of reef having to be negotiated before the tide turned between the main Gannet rookery and where we had landed. This gave little time to make a close examination of the Frigate-Birds that were soaring well above the first portion of the island. We found no nesting-place of these birds on Hoskyn or Fairfax Islands, although a more detailed examination of the latter island would perhaps have revealed the remains of one, as they are early breeders. Both on Rocky Island (in the Gulf of Carpentaria) and on Raine Islet, McLennan found fully-fledged young birds in the month of July, and I found fully-fledged young in their nests on Raine Islet at the end of October and all flying in December. It was not possible to tell from those soaring overhead whether they were of one or two species, as they were high up and their under-parts were in shadow.

On our return to North West Island from Tryon Island five fine Frigate-Birds escorted us, sailing overhead from the edge of the reef to the island. After we landed they kept sailing over the island at a great elevation and their numbers increased to eight.

At Heron Island one or two of these birds were seen at different days quite low down over the island. On the evening of the 4th December one was poised over our camp at a level not much above the tops of the trees, peering down and turning his head from side to side as though curious to know what was happening below. The outspread wings were never flapped, but one noticed a rotation or turning of the feathers or slight contraction or expansion of the wings. Later a second bird joined the first and both were there till darkness set in. They do not seem to have any object other than curiosity as they have no birds to harry. They seem to rest on the wing. When we called at Masthead Island twenty-one of these birds were soaring overhead but too high for us to ascertain details of plumage. On this island there are two large colonies of Crested Terns. On leaving the island we saw several Frigate-Birds out over the sea harrying the incoming Terns. From one to three Frigate-Birds were over Heron Island every evening; they seemed to be resting in the air before coming to roost for the night. On the last day of our stay at Heron Island Dr. Giblin and I had a good look at one of these birds soaring low overhead; it was at times almost stationary. Its generally dark plumage, white sides, and small bright crimson gulum easily identified it as *F. ariel*. Some that I saw overhead had a large white patch over the lower breast and abdomen, but no other details could be made out. On our last evening three were very low down when darkness was coming on, flying amongst the incoming Noddies and Shearwaters, but they did not seem to interfere with any; probably they had done so over the sea and were themselves coming in to find a roosting-place for the night. At no time did I see one with the large gular pouch which characterizes the male of *Fregata minor.*

The Australian Museum has specimens of both species taken on Masthead Island by the late A. R. McCulloch in 1914 and 1912, and of the greater Frigate-Bird (*F. minor*), taken on the same island by the late Charles Hedley in 1905. The sexes of both species differ in size and in colouration and the plumage of immaturity is also unlike that of the adult; besides this there are sexual differences in the immature birds. I have photographs of young fully-fledged birds; taken on Raine Island by myself in 1910, showing a pure white chest and under-parts from the neck downwards, both group and two bird pictures. The rufous head always shows as a dark head in photographs. Two skins, male and female, of *F. ariel,* young fully-plumaged birds, taken by myself on Raine Islet in 1913, show superior measurements for the female in wing and beak. Both birds have reddish heads—the female a dark rufous, the male pale fulvous—a dark band across the upper part of the chest, and the rest of the under-surface and flanks white; tail and under tail-coverts black, pinions black, tertiary coverts whitish, back brown, bill and gular pouch bluish-white, feet fleshy white. A photograph of young fully-fledged birds taken by myself in 1910 was published with notes in *The Emu,* Vol. X, p. 226. This shows the birds with their backs towards the photographer and the rufous heads also came out black in the photograph, leading my friend Mr. Mathews to the conclusion that the photograph was one of adult male birds (*Birds of Australia,* Vol. LV, Part 3, p. 284).

Little Black Cormorant (*Phalacrocorax ater*).—A flock of these birds was seen on the Wistari reef on our way back from Masthead Island. Another flock was seen on One Tree Island, lining the beach in company with the next species, and afterwards at close quarters on the dead coral reef at the back of the island.

Little Pied Cormorant (*Microcarbo melanoleucus*).—Seen on One Tree Island as detailed above.

Brown Gannet or Booby (*Sula leucogaster*).—In 1910 I first encountered this species breeding on the Ashmore Banks and on Raine Islet near the northern end of the Barrier Reef; and again in 1913 I landed on two of the Ashmore Banks and spent eight days amongst them on Raine Island and also found them breeding on a large sandbank near the Pandora entrance. I saw both mature and immature birds in Moreton Bay from the deck of a coastal boat in 1926.

On our way out from Bundaberg several were seen as already mentioned, and several were constantly passing and repassing Lady Musgrave Island and were noticed coming from or going in the direction of Fairfax Island. This made us anxious to inspect that island in the hope of finding them nesting there. We first of all went on past Fairfax Island to Hoskyn Island, a distance of fourteen miles north-west from Lady Musgrave Island. On arriving off the reef we noticed many Brown Gannets hovering over the reef and island. The island consists of two portions, both wooded. We landed on the larger, but did not find the Gannets nesting there. They seemed to be in greater numbers over the second portion, which was reached by walking over about a quarter of a mile of reef exposed at low tide. We first came upon several Gannets perched on *Tournefortia* bushes, and many more were disturbed from the open grassy sward near these bushes. Here we found their nests, containing eggs—one or two to each nest—or young birds from newly-hatched naked chicks through all stages of downy growth to those that were acquiring their poinion and tail feathers, but none beyond this stage.

These young birds were being cared for by either a male or female parent. The old birds were either sitting on eggs, standing over the smaller young to shelter them from the sun, or standing close beside the larger young. The old birds take turns in looking after the young bird, one going away to fish whilst the other guards; and when one parent comes in from the sea the other goes out. Sometimes both parents are in attendance. The old birds, though allowing of a fairly close approach when on eggs or young, did not seem to be so trustful as they were on Raine Island, where after remonstrating with open bill and voice they would regurgitate a cropful of fish as a "bribe"! Here we found that though the same bribes were offered they made off before one got too near.

The colouring of the old birds is very striking, the whole of the upper-surface, neck and breast being a rich brown with pure white abdomen and lower breast. The male bird's bill is bluish white, the blue being more marked at the base and gular pouch. In the female the bill is greenish-white, the feet being distinguished in the same way. The young are hatched naked and with eyes closed, but soon acquire a covering of white down and grow to full size before getting feathers. The full-sized young often looks larger than its parents owing to its fluffy covering of down. Their principal food seems to be flying fish, and great numbers of these fish must be captured every day to feed the numbers of developing young Gannets. No doubt these fish are in immense shoals as (when journeying from one island to another) we were constantly disturbing them from the water. Most nests contained two eggs or one young bird; although two newly-hatched young birds were frequently seen, one only usually was reared to the downy stage. A large space on this island made a pretty sight—a level green sward surrounded by green trees and dotted all over with downy young and their parents.

On the following day we visited Fairfax Island, which consists of three parts and a long sand-bank all connected by reef at low tide. Brown Gannets were nesting on all three. On the sand-bank and first island there were mostly young birds, the larger ones sheltering under bushes and the smaller ones still in their nests. The second portion of the island, which was separated by about half a mile of reef, had the largest nesting of Gannets of all the islands visited. It was a large, rocky amphitheatre covered with trailing plants, grass, and herbage, and had Gannets and their young at all stages all over the place and many nests containing eggs.

The third portion of the island I was unable to visit but Dr. Giblin did so and reported nesting Gannets all over it also.

Roseate Tern (*Sterna dougalli*).—We were not long on Lady Musgrave Island before a pair of these beautiful birds were found nesting on the shingle by a stranded log. A small colony were also nesting on a shingly point on the opposite side of the island; the shingle consists of worn coral and shells. This colony increased to about twenty nests before our departure. There were several Black-naped Terns with these birds, but they had not laid. I have always found these two species associated—on Bush Island in Torres Strait, on Wilson Island in the Capricorns in 1925 and again on his trip, and also on One Tree Island. The roseate hue of the breast of this species is only discernible in the early morning or evening light; it is then very marked, but it does not show at all in bright daylight. On Wilson Island, which was visited on the 3rd December, we found about twenty nests placed again on the shingle near the vegetated border. Numbers of the birds were about, and if we kept still they would come and settle on their nests within three or four yards. They did not seem to mind our talking, but were alarmed immediately on any movement being made. Here they were again associated with the Black-naped Terns. Both species are wonderfully dainty and beautiful. When were were here in 1925 there were numbers of young birds, but this time the birds had only just commenced to nest—doubtless a matter of food supply.

On the 7th December we visited One Tree Island, where we found many of these birds congregated on the shingle above high-tide mark, but only two had nested.

Crested Tern (*Sterna bergii*).—Several of these birds were sighted over the sea on our way out to Lady Musgrave Island, where odd birds or pairs were several times seen. One egg was laid on the shingly point where the Roseate Terns were nesting.

On Fairfax Island a small colony had nested on the rim of the second portion of the island. A few were seen on nearly all the islands visited and often over the sea; but it was not until we went to Masthead Island that we found them in any numbers. Two large colonies were nesting, one on a sandy point at the eastern end of the island, the other on the grass at the western end. Before we landed near the former a cloud of birds could be seen hovering over the point. When we approached the spot a vast concourse rose from their eggs and formed a very pretty picture against the dark green background of the forest trees. Single eggs covered the ground, being placed a foot to eighteen inches apart. No nest was made. The eggs, which displayed great variation in ground colour and markings, were all recently laid and none had hatched out.

The nesting place at the other end was chiefly on the grassy outer margin. A bare, sandy mound marking the site of a turtle's nest measured twelve feet by seven feet, and there were sixty-five eggs on it—one to each nest. Numbers of the birds were along the shore and out over the reef and sea. This fine Tern has a wider nesting-range than any other Tern on our coast; there are nesting-places on islands off the coast all

FLIGHT STUDY; CRESTED TERNS.

CRESTED TERNS ON THE ALERT.

Photos. by E. F. Pollock.

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around the north and down to South Australia at Robe, Port Victor and Dangerous Reef.

Lesser Crested Tern (*Sterna bengalensis*).—I saw only one of these birds during the whole of our trip; it was resting on the shinkle one day with a number of waders and Little Terns on North West Island.

Little Tern (*Sterna albifrons*).—One noted on Lady Musgrave Island with a party of Roseate Terns. On the 29th November about a dozen of these beautiful creatures settled on the North West Island beach in company with a lot of Waders.

Black-naped Tern (*Sterna sumatrana*).—This species was noted with the Roseate Terns first on Lady Musgrave Island. A few were seen on Tryon Island. There were a large number on Wilson Island and a few were nesting with the Roseate Terns. On our way to One Tree Island several pairs were seen out over the sea and great numbers were on the shore of this island in company with the Roseate Terns. Both species would probably nest freely very soon after our visit. There were often a few about the shore on Heron Island. Their constant association with the Roseate Tern for nesting purposes has been mentioned already.

Sooty Tern (*Sterna fuscata*).—Only one was seen during our trip; it was seated on the shore on Lady Musgrave Island. This species and the Lesser Crested Tern prefer more northern latitudes for nesting purposes.

Bridled Tern (*Sterna anætheta*).—Numbers of these Terns were seen over the sea and we found them nesting on Lady Musgrave Island. They prefer to conceal their single egg and will go far in under the shelving rock at times for that purpose. At the south-eastern end of Lady Musgrave Island they had an ideal place of this kind and numbers were nesting there. Others were content to place their eggs under or in a hollow log or under a heap of coral rock. They are very vociferous when their nesting-place is approached. On Hoskyn Island they were nesting freely in recesses formed by the stilted roots of the *Pandanus* in the main island. On Tryon Island they were nesting chiefly under shelter of the trailing plants and herbage. They were often seen harrying shoals of fish at sea. On Masthead Island numbers were nesting in the outer zone under the trailing plants. On One Tree Island their single egg was often placed without any attempt at concealment on the rough shingle above high-tide mark; great numbers of them were nesting on this island.

White-capped Noddy (*Anous minutus*).—The numbers of these graceful little birds inhabiting the various islands of these two groups and the seas that surround them can be estimated only in millions. On Lady Musgrave, North West, and Masthead Islands nearly all the larger *Pisonias* and fig trees and many of the smaller trees are utilized for nesting purposes. On Heron Island only about fifty trees were resorted to by these birds. They were nesting also on Fairfax, Hoskyn, and Tryon Islands, though in less numbers. On Lady Musgrave Island nearly every tree was utilized, even the *Pandanus* out on the edge of the island and one of the *Tournefortias* supported several nests. Here, on account of the absence of undergrowth, most of the nests were at a lower level than on the other islands. Here also the competition for building material was keener, as the goats had cleaned up all grass and herbage. The birds had to rely upon the *Pisonia* leaves that fell and several birds would compete for each leaf. The turtles in digging their nesting-pits often exposed tree-rootlets during the night, and no sooner had daylight arrived than several Noddies would be down pulling them out and carrying them to their nests. If we scattered straw or dropped bits of string near our camp the birds would very quickly retrieve every piece. They often picked up the ends of our tent-ropes and tried to fly up with them. Seaweed, of course, was largely used to augment the other material.

These birds have a habit of settling on the ground in small flocks either on cleared spaces (of which there were several on Lady Musgrave Island) or else on the beach, where they rested and talked to one another and pecked at the sands. The courting and nesting habits of these birds I have fully dealt with in *The Emu,* Vol. XXV, Part IV. There were very few young birds on Lady Musgrave Island when we left, and numbers were still building. One cannot but marvel at the numbers of small fish that go to feed this multitude of birds. Shoals of little fish often approached the shore of Heron Island, and they were so closely packed that the shoal looked like a shadow in the water. One shoal was 200 yards long by 50 yards in breadth; these fish were of the size utilized by the Noddies. The Noddies were as numerous when Jukes visited these islands in 1843, and probably for hundreds of years before the advent of man; yet they have made little impression on the shoals of fishes.

Silver Gull (*Larus novæ-hollandiæ*).—These scavengers and robbers of other birds' eggs and young are always graceful to look upon and are very clean, spending much time every day in bathing and preening their plumage. They were breeding freely on nearly all the islands visited, laying clutches of from two to three eggs. The nests varied in structure with the material or shelter available. On Lady Musgrave Island, where the ground was clear of all vegetation, the nests were placed amongst fallen logs or masses of coral rock and were of the scantiest description. On Tryon and North West Islands they were more elaborate. These birds are largely responsible for the single egg clutches in the Gannet and Roseate Tern nesting areas. They often hovered over the trees containing White-capped Noddies' nests, ready to pounce down upon an unguarded nest and carry off the egg. I saw one hovering over a *Casuarina*, pick off a cicada, crush it in its bill, and swallow it whilst slowly flying on. I had previously seen them feeding on grasshoppers in the same way. On North West Island they fared well from the offal left after the slaughtering of the turtles by the soup factory people.

Turnstone (*Arenaria interpres*).—This very conspicuous and energetic little shore bird frequents most of the islands. It runs along the water's edge rolling over quite large lumps of coral or coral rock with a deft toss forward and upward of the bill and head, picks up any treasures disclosed, and is off again to the next at a run. The Turnstone's association with the Lesser Golden Plover was very noticeable; they feed together, though in different ways, and fly together when alarmed. They do not assist one another in any way that one can observe, but take pleasure in each other's company. Usually there are about half a dozen Turnstones to a dozen Plovers, but the numbers vary.

Pied Oystercatcher (*Hœmatopus ostralegus*).—A pair of these shore birds was always haunting a certain area of the beach on Lady Musgrave Island; they probably had young birds in hiding, as the female frequently made pretence of being disabled to lead one away from the vicinity. I saw only one other of this species.

Sooty Oystercatcher (*Hœmatopus unicolor*).—A pair had a nest at the foot of a *Casuarina* stump on Lady Musgrave Island; it contained two eggs. The birds were very wary and used to walk quietly away before anyone came within a hundred yards of the nest. On Fairfax Island a pair were also behaving as though they had eggs or young, but I did not have time to look for them. On Tryon Island there were three, and one of these evidently had young birds in hiding. Wilson Island had its pair; so also did Wreck Island.

Red-kneed Dotterel (*Erythrogonys cinctus*).—Several of these birds were feeding in a small mangrove swamp at the Burnett Heads in company with Sharp-tailed Sandpipers.

Grey Plover (*Squatarola squatarola*).—Noted on the shore on North West Island.

Lesser Golden Plover (*Pluvialis dominicus*).—Fairly common on nearly all the islands visited. They feed higher up the shore than the other waders and are often on the grassy margin. They are often in company with Turnstones, as already detailed.

Red-capped Dotterel (*Charadrius ruficapillus*).—First noticed on the beach at Burnett Heads, where they were capturing little crabs. They were afterwards seen in numbers on North West, Tryon, and Heron Islands in company with other waders.

Eastern Curlew (*Numenius cyanopus*).—Several noticed at Burnett Heads.

Whimbrel (*Numenius phæopus*).—Seen at different times on nearly all the islands visited.

Black-tailed Godwit (*Limosa limosa*).—One noted feeding on the margin of the central waterhole on One Tree Island by Dr. Pockley, and afterwards on the shore by myself.

Bar-tailed Godwit (*Limosa lapponica*).—There were always two or three on nearly every island that we camped upon and on most of those that we visited; never in flocks at any time.

Wandering Tattler (*Tringa incana*).—Often seen in large flocks. One was brought to me in a dying condition and after death was converted into a skin for future reference.

Common Sandpiper (*Tringa hypoleuca*).—Several seen on One Tree Island.

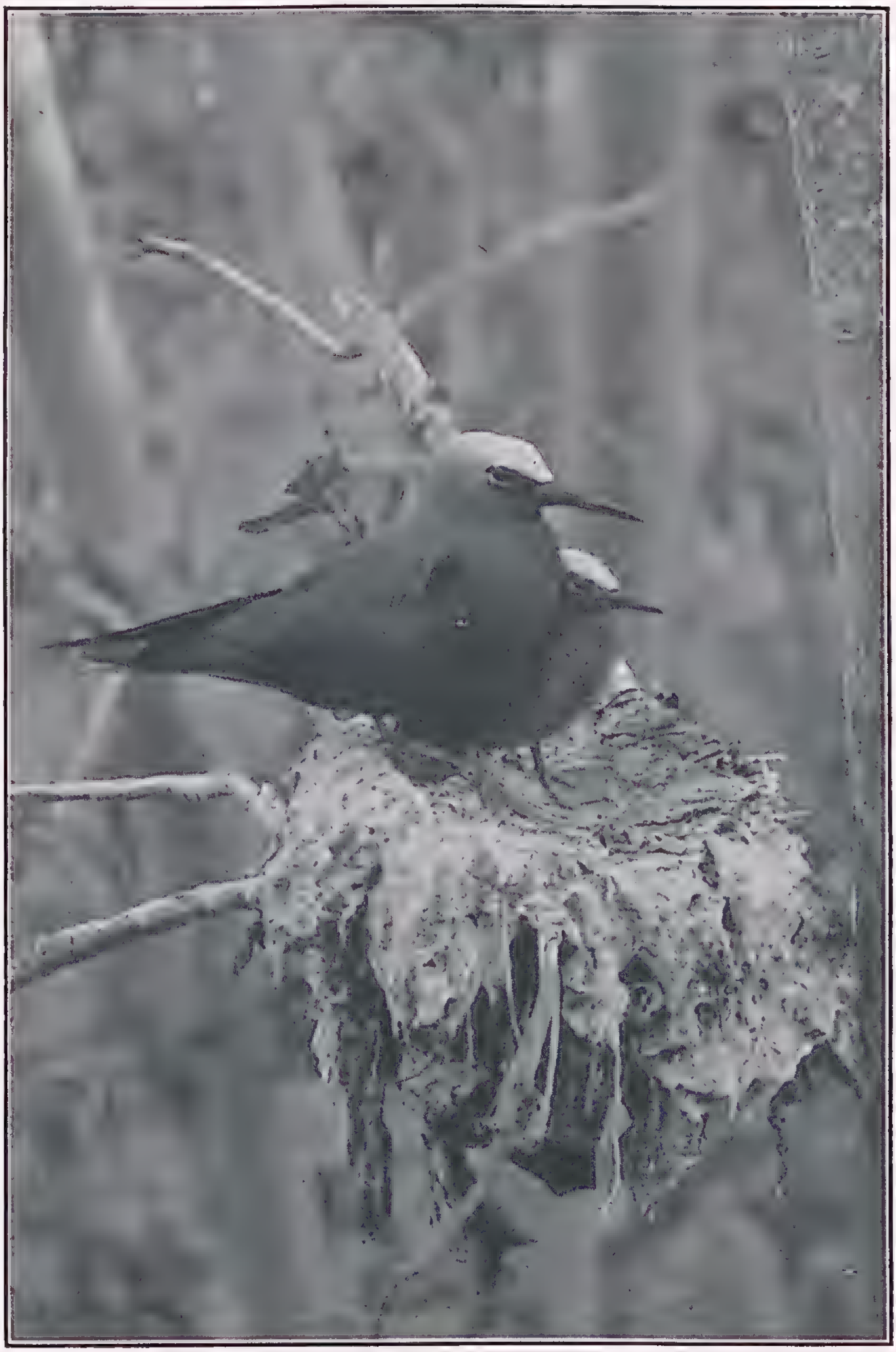
Terek Sandpiper (*Terekia cinerea*).—Noted on North West Island.

Little Stint (*Erolia ruficollis*).—Often seen with other shore birds. One in an exhausted state was brought to our tent by Mr. White and probably it had just arrived from a long flight.

Marsh-Sandpiper (*Tringa stagnatilis*).—One of these birds on the shore was very tame and allowed me to watch its movements at a close range for some time. It remained on the island all day and then disappeared.

Sharp-tailed Sandpiper (*Erolia acuminata*).—At Burnett Heads a number were feeding in a mangrove swamp. They were afterwards seen on North West, Heron, and One Tree Islands.

Reef Heron (*Demigretta sacra*).—We found only old nests on Lady Musgrave Island. The birds were common on all reefs. Heron Island is well named, as it is attached to a very long and well exposed reef and has another very large and long reef running away at right angles—the Wistari Reef. Both these are favoured feeding-grounds of the Herons, and the birds may be seen dotted all over them at low water. When the tide rises they come in to Heron Island to roost on the trees or shrubs or poke about the shore till the next low tide, when they again disperse over the reef. One day I counted fifty on the rocky shore, ten of which were grey and the rest immaculately white; this is about the average pro-



DOMESTICITY! WHITE-CAPPED NODDY AND YOUNG, NORTH-WEST ISLAND.

Photo. by O. Webb.

NATIONAL MUSEUM VICTORIA

portion. They are shy birds and do not admit of a close approach. A number of nests were in the trees on one side of this island; many of these were occupied by young. In no case on Heron Island did we find more than one young bird in each nest. Whether the Gulls or the rats (common on this island) were responsible for the reduction we were not able to determine. On North West Island, where there were no rats, we found nests containing full clutches of eggs and of young birds. There were a number of unoccupied nests in the *Tournefortias* on Fairfax Island and also on One Tree Island.

White-breasted Sea-Eagle (*Haliæëtus leucogaster*).—One or more pairs of these fine birds had a nest or nests on nearly every island that we visited. On Lady Musgrave Island there was a huge nest, a very old one, about thirty feet up in a fine big *Pisonia*. A *Casuarina* overlooking the shore out from the nesting-tree had evidently been used as a feeding tree, as the ground underneath was littered with remains of sea snakes, leather-jackets (*Coutherines*), and long toms (*Tylosurius ferox*). These latter fish when disturbed leap from the water and skip along the surface, a practice that probably causes the Eagle to swoop and pick them up.

On Hoskyn Island a *Casuarina* had fallen with the old nest and a new one had been built on another *Casuarina*. Of the two nests on North West Island only one was occupied—the same that contained young in 1925. On Tryon Island I flushed an Eagle from her nest about thirty feet up in a *Pisonia*, built above an old nest. There was a large amount of *débris* from the old nest at the foot and at a lower level of the tree; this was in dense scrub. On Heron Island there were two occupied nests, from one of which a young one flew when we were on the island. One of the nests was on a tall *Pisonia* by the turtle soup factory. This contained a young bird almost fully feathered. Our tents were pitched almost alongside this tree, and we were often awakened at dawn by the old birds approaching the nest, when they uttered a loud and quickly repeated clack-clacking noise. There were also several unoccupied nests on Heron Island. The long reefs in the vicinity probably make it a good centre from which sea snakes and surface-swimming fish may be obtained. On One Tree Island a pair of these birds had an old nest in a clump of *Pandanus* at about eight feet from the ground, with a newer nest above it. The old nest measured eight feet by six feet across the top, and the newer one had a depth of four feet. Jukes describes this nest in his *Voyage of the Fly*, and as he visited the island eighty-four years ago, the nest has an historic interest.

Eagles were also seen on Tryon and Masthead Islands. The pair on One Tree Island had (from remains examined) been feasting on sea snakes, long toms, leather jackets, Herons, Shearwaters and Bridled Terns.

Sacred Kingfisher (*Halcyon sanctus*).—Several on North West Island. The nesting hollows noted in 1925 had rotted away. They often have a nesting-hollow bored into the soft trunk of a *Pisonia.* The butt of a limb that has broken off near a main trunk is a favourite situation. We found that a pair often picked a tree just inland from a rocky patch of beach over which they considered that they had a pre-emptive right as a feeding-ground, and as such was jealously guarded. Any wader trespassing on it was immediately attacked by one of the Kingfishers and seemed glad to get away from the little fury. One hollow was much higher up than usual—about thirty feet. The birds were also on Tryon Island where I found two nests, one containing young birds and the other probably eggs. A hollow about nine feet up in a *Pisonia* on Heron Island, just by our camp, contained three young birds. At the other end of this island a pair that Dr. Giblin and I watched bathing in the sea-water were feeding young birds in a hollow high up in a *Pisonia* bordering the shore.

Rainbow-Bird (*Merops ornatus*).—Several nesting-holes of this bird were seen in the level sandy soil near the Burnett Heads Hotel, where we had breakfast before leaving for the islands.

Spine-tailed Swift (*Hirundapus caudacutus*).—We were surprised to find a number of Spine-tailed Swifts hawking overhead through the vegetation on Heron Island when we arrived there on the 1st December. They were there every day during our stay, hawking quite low down from daylight until dark, when they used to vanish all at once, probably going to roost clinging to the trunks of one of the trees. They were over Wilson Island also on the day that we were there and a solitary bird was over One Tree Island. On Heron Island we all admired the ease and grace of their rapid movements—soaring aloft one minute and next darting rapidly down and threading their way through the trees and shrubs with incredible swiftness and accuracy.

Grey-breasted Silvereye (*Zosterops lateralis*).—This little bird was seen and heard on every island that we visited or camped upon. On Lady Musgrave, where there were trees, they were just as much at home as in the dense undergrowth of North West, Tryon or Wilson Islands. On the first-named we found them feeding on the fruit of *Ficus opposita,* varied with small insects. Here they were nesting in the *Pandanus* trees. On North West Island several nests were found by different members of our party, usually placed at about three or four feet from the ground. One in a convolvulus contained three young birds which were just getting their feathers and pretty well filled the nest. Another contained four eggs; this nest was noted suspended from the horizontal fork of a *Scævola* bush. The nest was wholly composed of fine rootlets, bound around the rim and outside with cobweb and decorated with the greenish-white egg-sacs of spiders. Mrs. Cowen also found a nest containing one egg. Another nest was placed in a small fig. On Heron Island Dr. Giblin noticed these birds carrying nesting material into a *Pandanus,* and on One Tree Island a pair was also carrying material into the same *Pandanus* patch that supported the Eagles' nest. Here they were feeding out on the open heath and were quite numerous. On the larger islands there was abundance of food for them—two species of fig (*Ficus opposita* and *Ficus platypoda*) were ripening fruit in abundance, and insect life was exuberant. These birds are probably responsible for disseminating the seeds of these figs and those of *Tournefortia* from island to island.

Pied Currawong (*Strepera graculina*).—Not noticed in any of the islands of the Bunker group, but they immediately made their presence known on our landing on North West Island. A pair could be heard every day afterwards behind our tent at the border of the scrub, where fully-fledged young were being fed. Many more were seen afterwards. One was seen to make his way down to the beach and search for food on the shore rocks. On Heron Island a pair had large young near the factory. My first introduction to the bird-life of this island was an awakening early by some unusual noises—a White Heron scrambling on the galvanized iron roof, a pair of Currawongs feeding a young one on a condenser, a Rail wandering about the back door, and the Eagles clacking overhead.

Currawongs were also on Tryon Island. Dr. Giblin found two of their nests on Heron Island.

Domestic Fowl (*Gallus ferrugineus*).—Fowls were left on North West Island many years ago and have reverted to the form and habits of their jungle ancestors. They seem to do well and prefer to inhabit the thickest part of the scrub. They seldom fly, depending on their legs and the density of the scrub. They breed freely; several nests of eggs were found by our party and clutches of chickens frequently were seen. These if chased scatter and squat whilst the squawking mother takes the pursuer on to a safe distance from them, when she vanishes into the undergrowth. The roosters, with red hackles and flowing tail, are handsome birds, but very shy. These birds do no harm whatsoever either to the other bird-inhabitants or to the vegetation, and could with advantage be let loose on all the scrub-covered islands.

Nesting of the Bell-Miner.

By (REV.) CLARENCE L. LANG, Ararat, Victoria.

THE Bell-Miner (*Manorhina melanophrys*), while not one of the most brightly plumaged of the large family of *Meliphagidæ* (Honeyeaters), is nevertheless one of the most interesting of these birds. Though well known in name, for it has been immortalized by Australian poets, who hear in its notes "silver bells from a distant shrine," the habits of the Bell-Miner seem to have been observed and recorded by few.*

The general appearance of the bird is olive-green, with a bright yellow patch between the eye and bill, an orange-red bare spot below and behind the eye, a few blackish feathers about the eye and bill, and the bill and feet bright yellow.

This species must not be confused with the Crested Bell-Bird (*Oreoica*), which is a solitary bird, inhabiting the inland open timber, and is not found near the south-eastern coast-line. A Victorian railway poster, exhibited on most railway stations in the State, has a picture of the Crested Bell-Bird as inhabiting Gippsland, a place where it is never found.

The Bell-Miner is a habitant of the south-eastern coast-line of Australia,† which is well watered and thickly timbered. It loves the stream-side scrubs and lives in colonies and the nests are usually built close together. The Bell-Miners live chiefly among the tops of the eucalyptus trees, where they obtain their food, and though hard to observe, because of their coloration, which harmonizes so well with the green foliage, their notes are easily recognized.

The twinkling notes resemble the beating of a distant anvil. All the notes are not of the same tone, and as each bird of a colony utters its single note you get a variety of tones. The bird also has an alarm note which is of a scolding, harsh, churring character. On one occasion I had a splendid demonstration of this alarm note, at Belgrave. Seeing a young bird just out of the nest, I had no difficulty in catching it, and immediately it emitted a screech its parents came to the rescue, and very soon there were about thirty adult birds around me, all uttering their alarm notes. These calls subsided only when the young one was liberated.

A number of colonies of this species are to be found in the Dandenong Ranges in close proximity to Melbourne, and our observations have been confined to these parts. In company with Mr. A. G. Campbell, of Kilsyth (Vic.), on August 3, 1927, I visited Olinda Creek, where he had located a small

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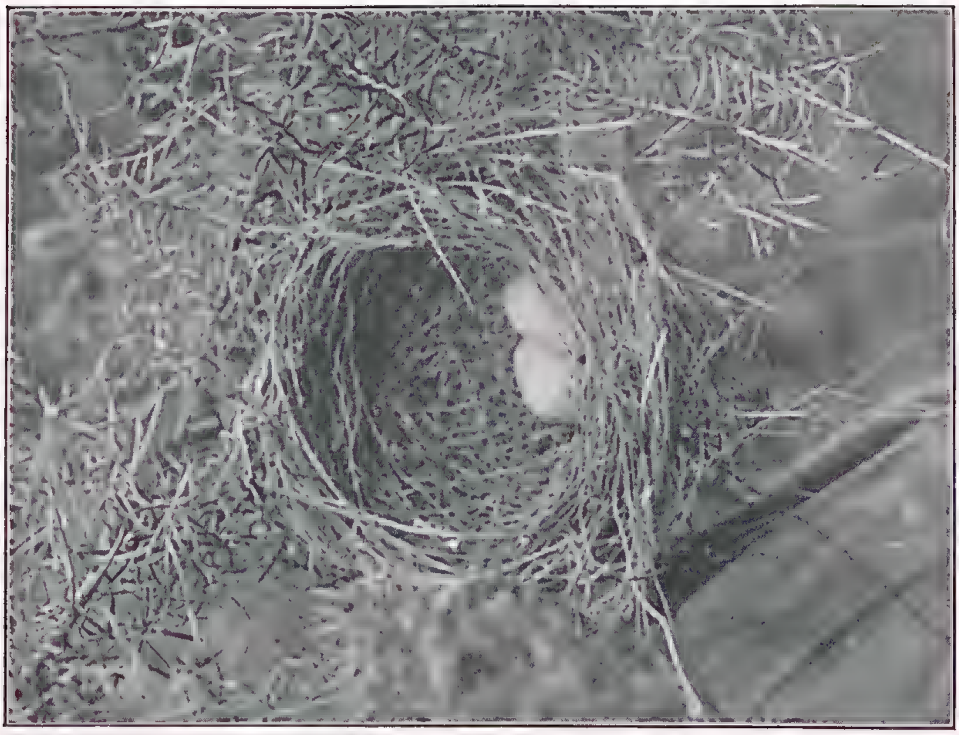
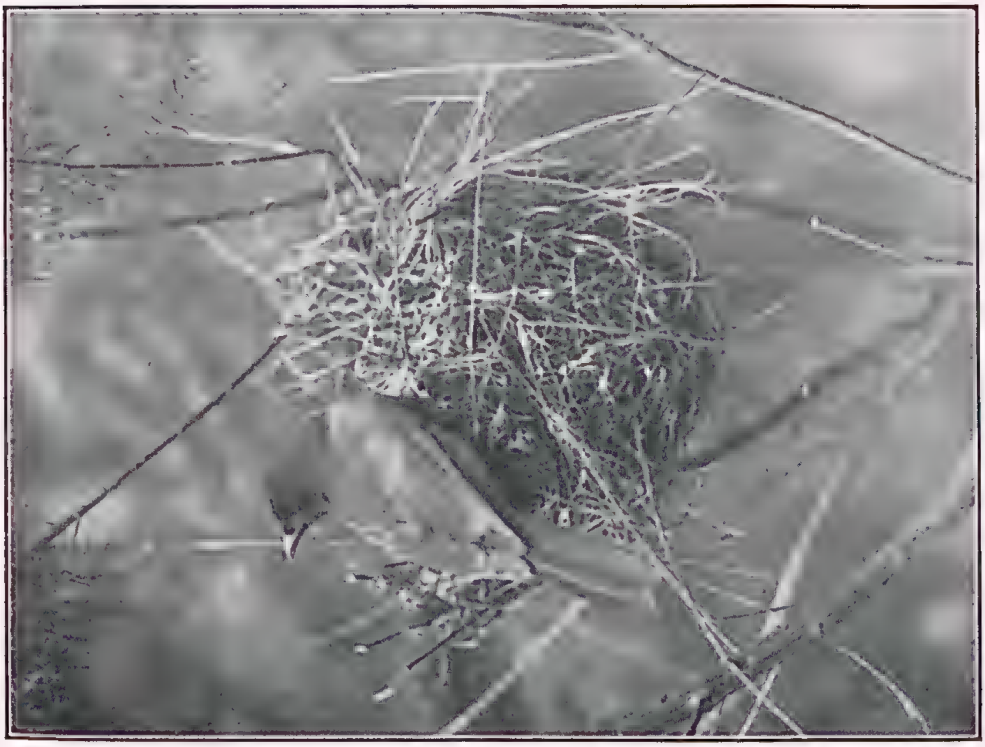
* For last, see F. E. Wilson, *The Emu*, IX, pp. 234-6, H. Wolstenholme and J. Sutton, *ibid.*, XXIII, p. 67, and A. H. Chisholm, *ibid.*, XXVI, p. 83.

† It is also found in Queensland coastal areas, at least 100 miles north of Brisbane.—EDITOR.



NEST AND EGGS OF BELL-MINER.



BELL-MINER AT NEST.

Photos. by C. L. Lang.

colony of birds the previous year. A number of old nests were seen, and also one half completed, that looked new. This we decided to keep under observation. Visiting the locality a few days later we noted that the nest had been added to. On August 20 the nest was completed and contained two eggs, which is the usual clutch, but the bird had not yet commenced to sit.

The nest was situated about 9 feet from the ground in a clump of fairly thick scrub, and was built of grasses woven together and attached to the slender twigs with spider-web and also partly supported by a fork of the shrub. The outside of the nest was decorated with spider-cocoons. One of the eggs was of a flesh-pink colour with reddish-brown spots, which is the usual coloration, but the other was almost pure white, with just the slightest trace of spots on it.

The nest was visited again a week later in the hope of obtaining photographs of the birds, but they were very shy and would not face the camera. The young were hatched out on September 4, sixteen days after the eggs were first observed. At this stage a remarkable change came over the parent birds. Though they had been so shy previously, now that the young were in the nest they did not show the least trace of fear. A rough bush ladder had been constructed, and the camera was set up on this, the lens being about two feet from the nest, and we were able to take as many pictures of the birds as we desired.

For the first day or two the parents protected their young very closely, one of the birds sitting on the nest until the other came with food, when they would exchange places. By the time the young were a week old the parents were exceptionally tame, and would sit on the edge of the nest for a considerable time or on the pole of the ladder just a few inches above my head. I was thus enabled to focus, make exposures and change the plates without the bird moving. Both birds assisted in the feeding of the young and the food consisted of grubs and insects which they gathered from adjacent trees. One interesting feature about these birds was the way the parent would sit motionless on the edge of the nest for periods extending over five minutes, looking at its young. The young left the nest on September 18.

Two other nests were found, each containing two eggs, within a few yards of the earlier nest. One contained eggs on September 10 and the other on September 15. These nests were much closer to the ground.

The breeding season for this species seems to be an extensive one, lasting from the end of July until the end of February. The birds appear to have two broods in the season, one about September and the other in January.

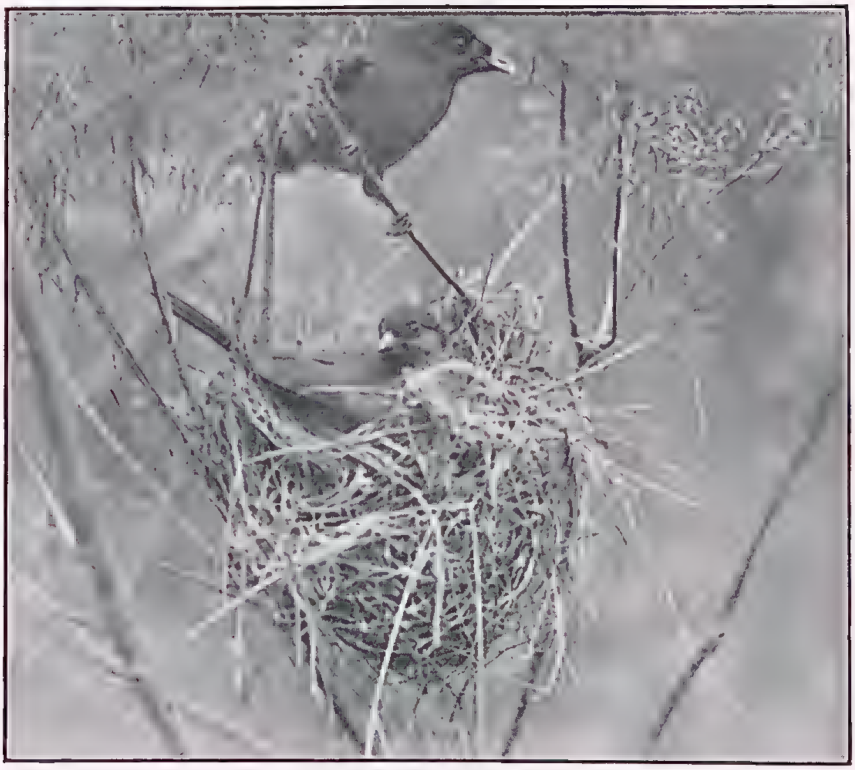
Notes on Some Victorian Birds.

By Frank E. Howe, C.M.Z.S., Melbourne.

The following notes and observations are, roughly speaking, spread over the past twenty-three years. Many Victorian ornithologists have spent week-ends in the bush with me, and more particularly Messrs. J. A. Ross, A. H. E. Mattingley, T. Tregellas, E. W. and H. W. Bunn, L. Ausell and last, but not least, Mr. G. Falconer, an intrepid climber whose activities have been responsible for adding many rare eggs to my collection. Many visiting ornithologists have had trips with me to the Dandenong Ranges, the aviary of southern Victoria, the most notable occasion being the visit of Messrs. J. N. McGilp and C. E. Simson to me on November 24 and 25, 1923. The latter day was memorable because on that day I found the nest and egg of the Gang-Gang Cockatoo, which was described in *The Emu,* Vol. XXIV, p. 67; and whilst watching the female going through her strange performance at the nesting-hole I was fortunate enough to find a pair of Red-browed Tree-Creepers building their nest in a hollow spout some fifty yards away.

In September, 1907, Messrs. Mattingley, Ross and I spent a few weeks in the mallee at Pine Plains with the late Charles McLennan ("Mallee-Bird"), who introduced us to the birds of that locality. Since then I have had sixteen trips to many parts of the mallee, but mostly to the parish of Manya and farther north in the north-western corner of the State. Our objective was the nest and eggs of the Night-Parrot (*Geopsittacus occidentalis*), but we never saw a feather of the bird. The mallee, now being rapidly cut up for wheat-growing, is a strange bit of country. Huge grassy plains, belts of short mallee, tracts of porcupine grass, smaller plains with salt-bush and blue-bush, and the copai country of Kow Plains (now known as Cowangie), with its larger timber, are the homes of a great number of birds, some of them peculiar to this type of country. The season in the mallee is usually much earlier than in southern Victoria, and this is regulated by the rainfall, the average being about fourteen inches.

The scrubs of Mitcham, Ringwood, Croydon, east of Melbourne, the dense and larger timber in the gullies of the Dandenongs, Whittlesea, Healesville, Launching Place (on the southern side of the Dividing Range) and the plains to the west and north-west of Melbourne have been well searched by us. I have been on the Murray swamps but not in the true breeding season when many water-loving birds breed in thousands. I have not been able to visit the extreme eastern portion of the State where such rare forms as *Dasyornis*



UNIQUE STUDY: PAIR OF BELL-MINERS AT NEST.

Photo. by C. L. Lang.

"BY CHANNELS OF COOLNESS": HAUNT OF THE BELL-MINER.

Photo. by A. H. Chisholm.

brachypterus, Pezoporus wallicus, and *Lopholaimus antarcticus* occur.

Through the ingenuity of Mr. E. W. Bunn we had some special instruments made, among them a fork with long and tapering points for taking the nests of Robins, Flycatchers *et cetera,* a clip to hold others, and secateurs to cut them down. Added to these an admirably made rope ladder made our collecting comparatively easy. Of course we had to put up with a lot of hard work. The weather has never deterred us and plenty of optimism, perseverance and patience has made the following list a fairly representative one:—

Emu (*Dromaius novæ-hollandiæ*).—Fairly numerous in the mallee; footprints noticed on many trips. Owing to the protracted dry spell many birds were seen on the crops.

Little Penguin (*Eudyptula minor*).—One August a few years ago I was very interested to see five birds pass along within a few yards of the beach at Frankston. They were feeding in single file.

Mallee-Fowl (*Leipoa ocellata*).—This wonderful bird was very numerous when we first visited the mallee, but owing to large areas being taken up for grazing and wheat growing it is becoming alarmingly scarce. I have twenty eggs taken from a mound and I believe only one pair of birds use each mound. The strangest mound I ever saw was at Linga. Only eighteen inches in diameter, it was clearly the work of a young female and contained one rather small egg. Large amounts of ants are devoured by the Mallee-Fowl. The call-note of the Spotted Nightjar is confused by residents with that of the Mallee-Fowl.

Stubble Quail (*Coturnix pectoralis*).—Breeds freely in the mallee. Whilst looking for a nest of the Scrub-Robin during September, 1918, I noticed a female in a very dense scrub of wire-brush (*Acacia*). In southern Victoria this bird breeds well into autumn.

Brown Quail (*Synoicus australis*).—Flush coveys in swampy tea-tree country. One secured on a grassy plain at Parwon.

King Quail (*Excalfactoria chinensis*).—Flushed on the Yarra flats at Launching Place this season.

Red-backed Quail (*Turnix maculosa*).—Once saw a set of eggs lying on the ground between the rails of the line at Mount Dryden, Stawell.

Painted Quail (*Turnix varia*).—Make their appearance early in October, when they are fairly numerous in tussocky grass country at Mitcham and Ringwood. Very plentiful at Croydon last season. A bird tried to lure me from the nest by feigning a broken limb and after taking me a few yards quickly disappeared. This was repeated many times. Clutch, 4 eggs.

Plain-Wanderer (*Pedionomus torquatus*).—Used to be fairly plentiful on the plains at Sydenham and Diggers Rest. I have picked up the bird when being set by a dog. An acquaintance has also taken many birds by hand. The set of eggs in my collection was taken in the mallee at Lake Boga. Mr. E. W. Bunn and I found a nest containing three fresh eggs in a very short wheat crop, but all were broken by the hoof of a horse.

Peaceful Dove (*Geopelia placida*).—Seen in the mallee at Tailem Bend during September, 1908.

Diamond Dove (*G. cuneata*).—A solitary bird seen at Parwon.

Common Bronzewing (*Phaps chalcoptera*).—Very numerous, especially in the mallee.

Brush Bronzewing (*P. elegans*).—Sparingly distributed about the scrubs near Melbourne.

Crested Pigeon (*Ocyphaps lophotes*).—Very common at Carwarp in the mallee during September, 1923. Many nests containing eggs and young. Locally known as Whistling Pigeon.

Lewin Water-Rail (*Rallus pectoralis*).—Birds and eggs seen at Mud Island some years ago.

Banded Land-Rail (*Hypotænidia phillipinensis*).—Have occasionally seen this bird after heavy rains at Ringwood and Bayswater.

Australian Spotted Crake (*Porzana fluminea*).—Many years ago a dead bird was brought to me and the skin was sent to Mr. Gregory Mathews.

Marsh-Crake (*P. pusilla*).—Have occasionally seen this dainty form.

Spotless Crake (*P. plumbea*).—Saw one bird at Buzzby, Port Albert, on November 21, 1926.

Black-tailed Native-Hen (*Tribonyx ventralis*).—Many birds seen in the mallee one September, and again at Picola on the River Murray.

Dusky Moorhen (*Gallinula tenebrosa*), Bald Coot (*Porphyrio melanotus*), Coot (*Fulica atra*), Great Crested Grebe (*Podiceps cristatus*).—All seen on the Murray swamps at Picola.

Little Grebe (*P. ruficollis*).—A pair of birds, one on a nest, was noticed on a small open dam at Alexandra, November 7, 1926. Rapidly covering the eggs and slipping off the nest both birds dived. We were around the dam for quite ten minutes but did not again see either bird.

White-faced Storm-Petrel (*Pelagodroma marina*).—Breeding in many thousands in small burrows under the pigface weed (*Mesembryanthemum*) on Mud Island. Both sexes in about equal numbers were in the burrows. Many of the eggs have a faint zone or red or purplish markings.

Sooty Albatross (*Phœbetria fuliginosa*).—A few birds seen near Mud Island.

Black Cormorant (*Phalacrocorax carbo*).—Some seen on the rocks off Sorrento, Christmas, 1923.

Little Black Cormorant (*P. ater*).—Breeding on the Murray swamps.

White-breasted Cormorant (*P. fuscescens*).—Seen at Buzzby, Port Albert.

Little Pied Cormorant (*Microcarbo melanoleuca*).—Breeding on the Murray swamps.

Australian Darter (*Anhinga novæ-hollandiæ*).—This fine bird was seen on the Murray near Picola.

Australian Gannet (*Sula serrator*).—Common on the bay.

Australian Pelican (*Pelecanus conspicillatus*).—Plentiful at Buzzby. Saw birds in the mallee flying north.

Whiskered Tern (*Chlydonias leucopareia*).—Very numerous on the back waters of the Goulburn River at Nagambie one year.

Caspian Tern (*Hydropogne caspia*).—Odd birds observed at Buzzby.

White-fronted Tern (*Sterna striata*).—A Tern which appeared in great numbers on the Yarra some three years ago was, I think, referable to this species.

Crested Tern (*Sterna bergii*).—Observed at Mornington.

Little Tern (*Sterna albifrons*).—I have an undoubted set of three eggs taken on Mud Island, and among nests of the following species.

Fairy Tern (*S. nereis*).—Breeding in a small colony on Mud Island. It is well named and is one of the most graceful of sea-birds.

Silver Gull (*Larus novæ-hollandiæ*).—Plentiful around our coast.

Pacific Gull (*Gabianus pacificus*).—Not numerous.

Southern Skua (*Catharacta antarctica*).—One seen at Mornington, December 27.

Arctic Skua (*Stercorarius parasiticus*).—Fairly common on the Bay.

Turnstone (*Arenaria interpres*).—Secured at Mud Island.

Pied Oyster-Catcher (*Hæmatopus ostralegus*).—Breeding freely at Buzzby. An unusual set of four eggs was taken at Mud Island.

Sooty Oyster-Catcher (*H. unicolor*).—A few seen at intervals on Mud Island.

Spur-winged Plover (*Lobibyx novæ-hollandiæ*).—Evenly distributed.

Banded Plover (*Zonifer tricolor*).—Very common, especially in the mallee where many nests containing eggs are seen.

Eastern Golden-Plover (*Pluvialis dominicus*).—Seen at Mud Island and heard calling on the Murray swamps.

Hooded Dotterel (*Charadrius cucullatus*).—Very plentiful at Buzzby, where I took my first set of eggs, November 21, 1926.

Double-banded Dotterel (*C. bicinctus*).—Some few years ago Mr. H. A. Purnell and I secured a bird at Lara, where there were quite a few.

Red-capped Dotterel (*C. ruficapillus*).—Breeding on Mud Island.

Black-fronted Dotterel (*C. melanops*).—I have taken eggs at Parwon and again at Rowsley.

Australian Dotterel (*Peltohyas australis*).—A clutch of three eggs was found in a short wheat crop at Mulcra, North-west Victoria, in September, 1921. There were quite a number of the birds present, and we watched a bird go back to a nest containing three young, which were apparently just hatched.

White-headed Stilt (*Himantopus leucocephalus*).—Seen feeding on a waterhole at Kow Plains and uttering their puppy-like calls.

Red-necked Avocet (*Recurvirostra novæ-hollandiæ*).—Seen on the Murray swamps.

Eastern Curlew (*Numenius cyanopus*).—Fairly plentiful at Mud Is. and Port Albert.

Whimbrel (*N. phæopus*).—Ditto.

Little Whimbrel (*Mesoscolopax minutus*).—One specimen secured at Mud Is.

Black-tailed Godwit (*Limosa limosa*).—Seen often at Mud Is.

Greenshank (*Tringa nebularia*).—One specimen secured at Mud Is.

Curlew Sandpiper (*Erolia testacea*).—Ditto.

Red-necked Stint (*E. ruficollis*).—Observed in great numbers at Mud Is. and Port Phillip. They make a splendid sight when on the wing. They have a very rapid flight and after alighting have a habit of bunching up and many birds could be covered with a sheet.

Sharp-tailed Sandpiper (*E. acuminata*).—Specimens secured at Mud Is.

Australian Snipe (*Gallinago hardwicki*).—Observed on the Murray swamps.

Southern Stone-Curlew (*Burhinus magnirostris*).—The last bird I saw was at Parwon about ten years ago. Often heard in the mallee.

Bustard (*Eupodotis australis*).—Have only seen two birds in the flesh; one at Stawell, the other in the mallee.

Brolga (*Megalornis rubicundus*).—A number on the Murray.

White Ibis (*Threskiornis molucca*).—Plentiful on the Murray.

Straw-necked Ibis (*T. spinicollis*).—Seen in many parts of the State.

Royal Spoonbill (*Platalea regia*).—Saw one bird on the Murray.

Yellow-billed Spoonbill (*P. flavipes*).—Common on the Murray.

Little Egret (*Egretta garzetta*).—A few noticed on the Murray.

Plumed Egret (*E. intermedia*).—Breed freely on the Murray.

White-faced Heron (*Notophoyx novæ-hollandiæ*).—Plentiful. I took a fine set of five eggs at Bacchus Marsh.

White-necked Heron (*N. pacifica*).—Common on the Murray. Saw one bird at Parwon.

Nankeen Night-Heron (*Nycticorax caledonicus*).—Saw quite a number at Yea.

Brown Bittern (*Botaurus poiciloptilus*).—Seen at Lake Lonsdale and heard at many other places.

Maned Goose (*Chenonetta jubata*).—Common on the Murray.

Black Swan (*Chenopis atrata*).—Common in the State.

Duck (*Dendrocygna*, sp. ?).—Seen at Yea.

Chestnut-breasted Shelduck (*Casarca tadornoides*).—Plentiful on Lake Boort.

Chestnut Teal (*Querquedula castanea*).—One seen years ago.

Grey Teal (*Q. gibberifrons*).—Common.

Blue-winged Shoveller (*Spatula rhynchotis*).—One secured on the Murray.

Pink-eared Duck (*Malacorhynchus membranaceus*).—Secured on the Murray.

Hardhead (*Nyroca australis*).—Seen on the Murray and once in the mallee.

Musk Duck (*Biziura lobata*).—Plentiful. My brother, H. C. Howe, told me that he once watched a Musk Duck on a stream for an hour. The bird, swimming low in the water as usual, had three young on her back. When she dived she left the youngsters bobbing about like corks. Quickly they would bunch together and await the reappearance of the parent. When the parent rose the young ones made many quick reaches for the food that was already broken up, and again resumed their position on the parent's back. This was repeated again and again.

Spotted Harrier (*Circus assimilis*).—Very common in the mallee. Many nests seen containing the usual complement of three eggs.

Swamp Harrier (*C. approximans*).—Found breeding at Mud Is. and Launching Place.

Grey Goshawk (*Astur novæ-hollandiæ*).—Eggs taken at Kow Plains.

Australian Goshawk (*A. fasciatus*).—Breeding freely in the mallee; three to five eggs are laid. Also found breeding at Croydon and Mitcham.

Collared Sparrow-Hawk (*Accipiter cirrhocephalus*).—A nest found built in a Murray pine at Tutye contained three young. Eggs taken at Fern Tree Gully, where we watched a male call the female off the nest and, tearing to pieces a bird that he held in his talons, feed her.

Wedge-tailed Eagle (*Uroaëtus audax*).—Common in the mallee; also found breeding at Parwon.

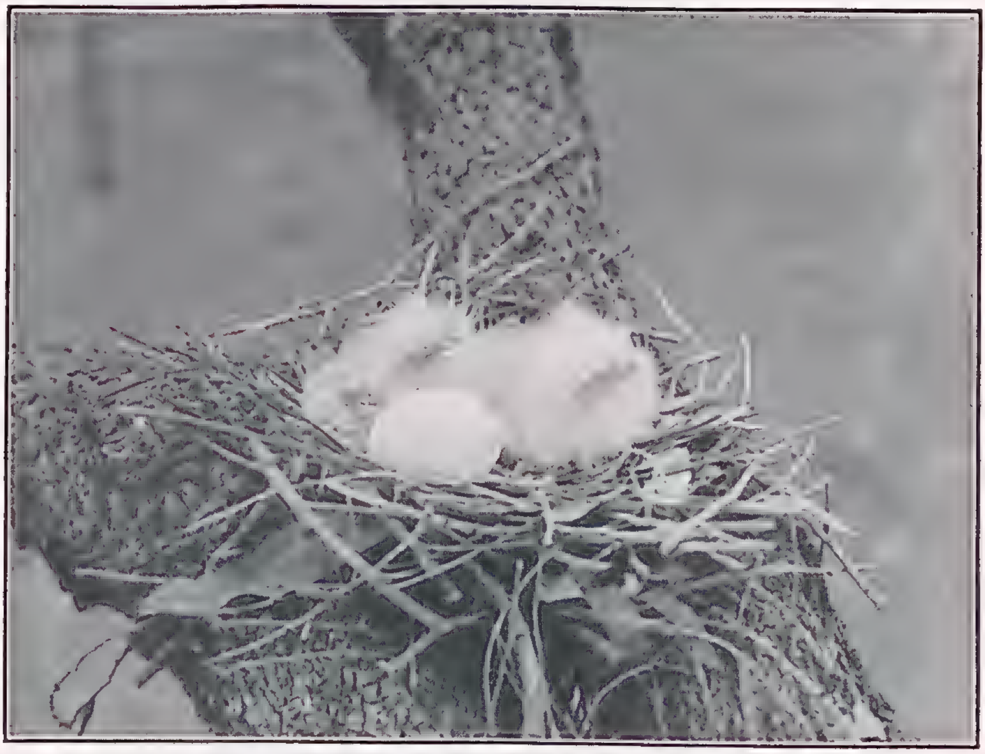
Little Eagle (*Hieraaëtus morphnoides*).—Evenly distributed through the mallee. Two eggs form the clutch.

Whistling Eagle (*Haliastur sphenurus*).—Numerous on the big timber plains at Bacchus Marsh. Many nests seen.

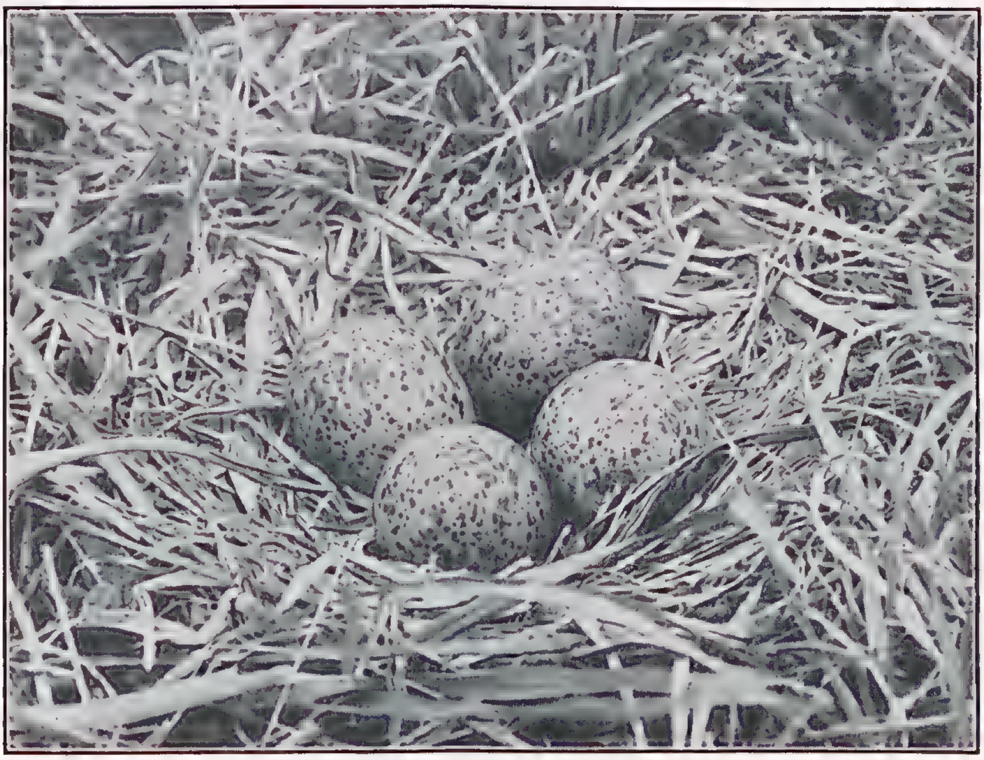
Little Falcon (*Falco longipennis*).—One seen at Yea dashing into a flock of Starlings.

Grey Falcon (*F. hypoleucus*).—I fancy I have observed it in the mallee.

Peregrine Falcon (*F. peregrinus*).—Noted at Anglesea.



NEST, EGG, AND DAY-OLD CHICKS OF TAWNY FROGMOUTH.



NEST AND EGGS OF BANDED PLOVER.

Photos. by O. Webb.

Brown Hawk (*F. berigora*).—Common. The mallee birds are more striated on the breast.

Nankeen Kestrel (*F. cenchroides*).—Plentiful. Have seen this bird dash into a flock of Starlings and capture one.

Boobook-Owl (*Ninox boobook*).—Fairly well distributed. Common in the big mallee at Tutye. Maximum four eggs.

Spotted Owl (*N. novæ-seelandiæ*).—A pair observed at the You-Yangs.

Winking Owl (*N. connivens*).—A bird secured at Parwon. The call is a loud "Mo-poke."

Powerful Owl (*N. strenua*).—For many years a pair has been located at Fremont, and in December they are found perched high up in the blackwoods, sometimes accompanied by two big young with the nesting down still adhering to them. Once a fully fledged young one gazed at us from the nesting hole. Next year the tree was climbed, but the hollow was empty. The usual call is a deep and slowly uttered "Wouf-wouf."

Barn-Owl (*Tyto alba*).—Often seen in coastal tea-tree . Noted also at Melton and Fern Tree Gully.

Sooty Owl (*T. tenebricosa*).—Two birds seen, one at Gembrook, the other at Fern Tree Gully. Both birds were disturbed from the tops of tree-ferns.

Rainbow Lorikeet (*Trichoglossus moluccanus*).—Have not seen this bird for many years, but it was common at Stawell.

Musk Lorikeet (*Glossopsitta concinna*).—Plentiful. Nests with eggs and young seen near Bacchus Marsh.

Purple-crowned Lorikeet (*G. porphyrocephala*).—Common in the mallee, where the birds breed freely. One nest contained five young.

Little Lorikeet (*G. pusilla*).—Common at Stawell and in company with *G. concinna*.

Yellow-tailed Black Cockatoo (*Calytorhynchus funereus*).—Often seen in the deep gullies during the winter months.

Gang-gang Cockatoo (*Callocephalon fimbriatum*).—In consequence of information received Mr. G. Falconer and I made a trip to Toolangi on January 9th and 10th, 1926. Gang-gangs were reported to be breeding in hundreds in a certain gully. I was convinced that report was wrong; in fact, the thing seemed impossible as well as being too late, as we generally see the young birds with their parents in January. However, we visited the spot, but not a sound was to be heard, so we decided to sit and rest a while. Presently, by the continual dropping of seed-pods of the wattles, many birds were seen to be feeding about us. We went on deeper into the gullies on an exploring excursion, meaning to get back at early evening, as the Cockatoos were reported to be "returning to their nests." As we got back in the evening it was noticed that there were many more birds and others were heard approaching. Presently there was a general calling of the birds and then they all flew into a patch of very tall mountain ash trees—probably a dozen large trees within three acres. These trees had many hollows in them, mostly round holes in the main trunk, and the birds took possession of each hollow (a pair to each hole). Birds were seen entering hollows all over the place and we chose the shortest tree, the lowest limb being probably sixty feet from th ground, but we failed to get a line over it. On January 17th we again visited the spot and at last managed to get the ladder into position. Mr. Falconer ascended the tree and from this limb threw the line over the next and the ladder was again hauled up and so on until he was enabled to look into a hollow or two. Mr. Falconer said he thought all the hollows were cleaned out ready for the eggs to be laid, but my opinion is that the birds seen going into the hollows were the young ones that had already been reared in them. It was a thrilling and pleasant spectacle, and the place was a veritable "cockatooery." A line was left over a limb in the next tree he climbed with the object of again visiting the spot within a week or two. Then came the great fires that raged through these gullies. I hope, however, to again visit this spot, as I conclude that large numbers of these rare eggs must be laid there. The birds were all feeding on the wattle seeds, which were green. After the fires many birds were seen close in to Melbourne, especially at Canterbury, and were with us all through the winter and spring of 1926. (For observations of the nest and eggs see *The Emu*, Vol. XXIX, p. 67.)

White Cockatoo (*Kakatoe galerita*).—Common; observed all over the State.

Pink Cockatoo (*K. leadbeateri*).—Sparingly distributed in the mallee.

Galah (*K. roseicapilla*).—Common.

Cockatiel (*Leptolophus hollandicus*).—Seen breeding at Parwon and in the mallee.

Superb Parrot (*Polytelis swainsoni*).—One specimen seen standing at the entrance of a hollow at Pine Plains.

Regent Parrot (*P. anthopeplus*).—Breeding freely in the mallee at Wonga and Yaapeet.

King Parrot (*Aprosmictus scapularis*).—Bird observed at Healesville and Croydon.

Crimson Rosella (*Patycercus elegans*).—Common in the ranges; breeding at Toolangi.

Yellow Rosella (*P. flaveolus*).—On the Murray it is a very common species.

Eastern Rosella (*P. eximius*).—Plentiful everywhere with the exception of the north-west.

Ringneck Parrot (*Barnardius barnardi*).—Very plentiful in the mallee. Brooding birds allow themselves to be handled in the hollows.

Red-backed Parrot (*Psephotus hœmatonotus*).—A common bird in Victoria.

Mulga Parrot (*P. varius*).—Breeding freely in the company of *Barnardius.*

Blue-Bonnet (*P. hœmatogaster*).—Fairly common at Carwarp.

Turquoise Parrot (*Neophema pulchella*).—One pair seen at Launching Place and a family group at Whittlesea were, I think, referable to this species.

Scarlet-chested Parrot (*N. splendida*).—I have often seen a Parrot in the extreme north-west of the mallee which I think is referable to this species.

Blue-winged Parrot (*N. chrysostoma*).—A few pairs of this charming little Parrot seen on the sand-dunes at Airey's Inlet.

Elegant Parrot (*N. elegans*).—A few pairs observed at Rowsley.

Swift Parrot (*Lathamus discolor*).—This bird is numerous at Parwon in the autumn months, feeding on the flowering box trees.

Budgerygah (*Melopsittacus undulatus*).—Breeding in the mallee; also at Parwon.

Tawny Frogmouth (*Podargus strigoides*).—Common all over the State. The mallee form is much smaller. The call is a quickly uttered "Oom" and in my opinion it never calls "Boobook" or "Mopoke."

Owlet-Nightjar (*Ægotheles cristata*).—Plentiful, especially in the mallee.

Broad-billed Roller (*Eurystomus orientalis*).—The bird evidently breeds at Mitcham. A pair has arrived at the same creek for the last four or five years, making their appearance early in November.

Azure Kingfisher (*Alcyone azurea*).—Plentiful on the northern rivers.

Laughing Kookaburra (*Dacelo gigas*).—Very plentiful. One noted in the mallee.

Red-backed Kingfisher (*Halcyon pyrrhopygius*).—A few noted in the mallee.

Sacred Kingfisher (*H. sanctus*).—Arrives early in October. Birds observed feeding the young on lizards.

Rainbow-Bird (*Merops ornatus*).—A few seen in the mallee.

White-throated Nightjar (*Eurostopodus mystacalis*).—On January 16, 1927, Mr. C. Taylor, of Canterbury, flushed a bird from its egg on a stony ridge at Gruyere. Three weeks late another egg was laid about twenty yards from the first site. On February 27 of that year I saw the bird sitting on the ground between two dead sticks near the same spot. During January, 1928, Messrs. F. Hassett, F. Wetzel and I camped close by in the hope of hearing and locating the birds, but we did not get a call. When the day broke we went up the hill towards last year's nesting sites. On coming to a fine and typical piece of ground I remarked, "Here is a splendid place for the birds," and immediately Mr. Wetzel exclaimed, "And there is the egg!" The egg was placed on the bare ground near a dead stick and was fresh but deserted and covered over with the red dust that accompanied the rain that fell on December 31. It was probably there for at least two weeks.

Spotted Nightjar (*E. guttatus*).—Fairly evenly distributed in the mallee, where it lays its single egg on limestone ridges.

Spine-tailed Swift (*Hirundapus caudacutus*).—Often seen hawking at Parwon. It is the fastest bird on the wing I know.

Fork-tailed Swift (*Micropus pacificus*).—Sometimes seen in company with the former. Many large flocks seen at Gruyere, Ringwood and Beaconsfield.

Pallid Cuckoo (*Cuculus pallidus*).—Very plentiful this season. How can this bird possibly sit in the nest of *Melithreptus lunulatus* to lay its egg?

Fan-tailed Cuckoo (*Cacomantis flabelliformis*).—Common. Particularly parasitical on the Pilot-Bird. This season I took its eggs from nests of the Orange-winged Tree-Runner and Rose Robin.

Brush-Cuckoo (*C. pyrrhophanus*).—Have taken its eggs from nests of the Scarlet and Rose Robins.

Black-eared Cuckoo (*Owenavis osculans*).—Fairly plentiful in the mallee. I have taken its egg at Ringwood, where it is parasitical on *Chthonicola sagittata*.

Horsefield Bronze-Cuckoo (*Chalcites basalis*), Golden Bronze-Cuckoo (*C. plagosus*).—Both common in Victoria but the latter is not met with in the mallee.

Superb Lyre-Bird (*Menura novæ-hollandiæ*).—Fairly plentiful in the Dandenongs. See *The Emu*, Vol. XXVII, p. 117.

Welcome Swallow (*Hirundo neoxena*).—Plentiful. An early breeder, rearing as many as three broods in a season.

White-backed Swallow (*Cheramoeca leucosternum*).—Breeding sparingly in banks of roadsides in the mallee.

Australian Tree-Martin (*Hylochelidon nigricans*).—Common.

Fairy Martin (*H. ariel*).—Common.

Grey Fantail (*Rhipidura flabellifera*).—Rare in the mallee but elsewhere in Victoria it is a very common bird. On three occasions I have found the nest without the usual stem and looking like miniature nests of *R. leucophrys.* At Griffiths Gully in the Dandenongs I once found a nest in a musk-tree and in the same tree a nest of *R. rufifrons.* Both nests contained full sets of eggs and both birds were sitting.

Rufous Fantail (*R. rufifrons*).—Migratory and arriving in southern Victoria towards the end of October. The nest is generally placed in a musk overhanging the waters of a gully. Two nests containing eggs were found within a few yards of each other in a gully.

Black-and-White Fantail (*A. leucophrys*).—Plentiful everywhere in open country.

Leaden Flycatcher (*Myiagra rubecula*).—Migratory; arriving in southern Victoria about mid October it almost immediately begins to breed. Both birds share the nidification and incubation. This and the succeeding species return to the same locality year after year. One female we know lays pear-shaped eggs, very sparingly marked, and the nest was always to be found in a short creek at Bayswater. We had taken a set of three fresh eggs from a bird and an hour later they were building the new nest.

Satin Flycatcher (*M. cyanoleuca*).—Migratory. Arrives in the gullies of the Dandenongs in great numbers about the same time that *M. rubecula* reaches the more open country. One pair has been known to breed in the same tree for three years. Like *M. rubecula,* they are double-brooded and call from the nest.

Restless Flycatcher (*Seisura inquieta*).—Particularly common in the mallee; also fairly plentiful in southern Victoria.

Black-faced Flycatcher (*Monarcha melanopsis*).—One pair observed at Fern Tree Gully. Although all adjacent gullies were well searched we did not again see them.

Brown Flycatcher (*Micrœca fascinans*).—Common. I took a pair of eggs at Croydon and in eight days the birds had another pair of eggs in the identical fork. Double-brooded.

Scarlet Robin (*Petroica multicolor*).—Plentiful in the open sapling country.

Red-capped Robin (*P. goodenovii*).—Common in the mallee and breeds in immature plumage. Fairly plentiful at the You-Yangs.

Flame Robin (*P. phœnicea*).—A fair number of these birds is distributed through the Dandenongs, and on the sides or clefts of dead trees they love to place their nests. Seen breeding in immature plumage.

Pink Robin (*P. rodinogaster*).—I have about half a dozen records of this bird from different localities. The note of the female is like the sound made by breaking a small dead stick.

Rose Robin (*P. rosea*).—Very plentiful in the fern gullies of the Dandenongs. The localism of this little gem is remarkable. It is stationary and the birds may always be found in their haunt. In its nidification this localism is very marked—the birds may not only use the same tree for many years but often the identical spot may be chosen for the home. I took a set of three eggs one morning and when passing the spot a few hours later I noticed the female turning round in a fork, where she was present fed by the male. A fortnight later a nest containing three eggs was in the identical spot. The call of the male is a high pitched "Tick-a-tick-a-tick-pee-pee," while that of the female resembles the preceding species. Eggs of the Fantailed, Brush and Horsefield Bronze Cuckoos have been taken from Rose Robins' nests by us. The species usually rears three broods in a season. Only the female nidificates; she is fed on the nest by the male.

Hooded Robin (*Melanodryas cucullata*).—Observed everywhere and is double-brooded.

Southern Yellow Robin (*Eopsaltria australis*).—Common. Have seen nests containing five and (twice) six eggs. On one of these occasions two birds were sitting on the nest.

Golden Whistler (*Pachycephala pectoralis*).—Very numerous in the Dandenongs. From my observations the female alone nidificates, but both share the task of incubation. Sometimes seen breeding in immature plumage. The eggs vary to a remarkable extent. Some are like miniature eggs of *Colluricincla harmonica*; others run through various shades of pink and red until they are like very brilliant and heavily marked eggs of some of our Honeyeaters. Each female lays the same type of egg all her life.

Rufous Whistler (*P. rufiventris*).—Very common in southern Victoria but a rare bird in the mallee.

Red-throated Whistler (*P. rufogularis*).—A few sets of eggs of this species have been taken by us and the birds secured. The nests are very substantial, made of bark and lined with grasses, and are generally placed on the top of porcupine grass and sheltered by a mallee. Other nests have been found in broom or on top of a Babbler's nest.

Gilbert Whistler (*P. gilberti*).—The same remarks apply to this black-lored bird and I am suspicious regarding the validity of the two species. I believe the red-lored bird is the immature form.

Olive Whistler (*P. olivacea*).—Sparingly distributed through the Dandenongs, where I took a clutch of comparatively large eggs. The call-note resembles the words "You're cranky," the first two syllables being slowly uttered and the last quicker and crescendo. The song is loud and penetrating and is repeated many times. Nests are mostly placed in bracken or sword-grass.

Grey Shrike-Thrush (*Colluricincla harmonica*).—Common; double-brooded; maximum four eggs.

Magpie-Lark (*Grallina cyanoleuca*).—Very common.

Eastern Shrike-Tit (*Falcunculus frontatus*).—The localism of this bird is very remarkable; it is always to be found in a given spot. The nests, too, are often seen in the same trees. The female alone nidificates and from the moment she has chosen the nesting-site the male trims the top of the tree with his powerful bill. Both share the task of incubation and the young frequently are able to leave the nest during November. This species is double-brooded. The birds utter a low piping note not unlike that of the Bronze Cuckoo but much lower. Another call sounds like "Knock-at-the-door-whack!"

Crested Bell-Bird (*Oreoica gutturalis*).—Common in the mallee, where its liquid and ventriloquial call may freely be heard.

Wedgebill (*Sphenostoma cristatum*).—We first located this very wary bird in September, 1919, at Manya, in the extreme north-western mallee, by hearing its very strange, staccato call; but it was not until the following year that we knew the song belonged to the Wedgebill. Although I have spent many hours in its pursuit I have only been able to get two fleeting glimpses. I know of six sets of eggs from Victoria and they are all much larger than eggs from other States. Two eggs form the set. Nests have been found in broom tea-tree, swordgrass and porcupine. A pair of eggs taken by Mr. C. G. Gibson in Western Australia measure in inches: A, 0·95 × 0·7; B, 0·95 × 0·71; while those from the Mallee measure: A, 1·02 × 0·77; B, 1·07 × 0·75. These eggs are from the collection of Mr. J. A. Ross.

Eastern Whip-Bird (*Psophodes olivaceus*).—Very common in the dense scrubs of the Dandenongs. The nest is easily found owing to the female uttering her two high-pitched notes from the nest immediately following the whip-like call of the male. The male feeds the female on the nest and they are double-brooded.

Black-faced Cuckoo-Shrike (*Coracina novæ-hollandiæ*).—Migratory and arriving in September. Occasionally I have remarked them through the winter.

Jardine Caterpillar-Eater (*Edoliisoma tenuirostre*).—Migratory. This bird, with its loud buzzing notes, arrives in the ranges about mid-October. In these dense scrubs it is hard to follow and we have never taken its egg.

White-winged Triller (*Lalage tricolor*).—Migratory; it arrives towards the end of October and almost immediately sets about its domestic duties. Three eggs are laid and both birds assist in their incubation.

Spotted Quail-Thrush (*Cinclosoma punctatum*).—Fairly plentiful and evenly distributed about the more open country, particularly where tussocks of grass abound. A favourite nesting-site is a tussock at the base of a tree-trunk, especially if the trunk is of a slanting nature. The nest usually has a platform of leaves at the entrance. This bird is very local and an early breeder. I once saw three young in a nest. The species is double-brooded. The female alone incubates the eggs and she calls from the nest.

Chestnut-backed Quail-Thrush (*C. castanotum*).—Evenly distributed through the mallee, preferring short mallee and dense undergrowth. Similar in all its habits to the preceding species.

Southern Scrub-Robin (*Drymodes brunneopygia*).—Very local and an early breeder. See *The Emu*, Vol. XIV, p. 71.

Grey-crowned Babbler (*Pomatostomus temporalis*).—Plentiful at Parwon.

White-browed Babbler (*P. superciliosus*).—Common in the mallee.

Chestnut-crowned Babbler (*P. ruficeps*).—Very common at Carwarp in the mallee.

Ground Thrush (*Oreocincla lunulata*).—An early breeder in the coastal tea-tree but much later in the gullies.

White-fronted Chat (*Epthianura albifrons*).—Common anywhere.

Crimson Chat (*E. tricolor*).—A few seen on saltbush plains in the mallee.

Brown Weebill (*Smicrornis brevirostris*).—Sparingly distributed near Melbourne, but very plentiful in the mallee.

Eastern Whiteface (*Aphelocephala leucopsis*).—Same as preceding species.

Acanthiza lineata, A. nan, A. pusilla, A. hamiltoni, A. uropygialis, A. reguloides, A. chrysorrhoa.—See *The Emu*, Vol. XVI, p. 170.

White-browed Scrub-Wren (*Sericornis frontalis*).—Plentiful, particularly in the ranges. One of the chief foster-parents of *C. flabelliformis.*

Redthroat (*Pyrrholæmus brunneus*).—This songster was fairly plentiful in the mallee but is rapidly becoming rare. Have seen nests finished and promptly deserted; also young in a nest placed in the dead centre of porcupine grass.

Chestnut-tailed Ground-Wren (*Hylacola pyrrhopygia*).—Seen at Anglesea. See *The Emu*, Vol. XV, p. 37.

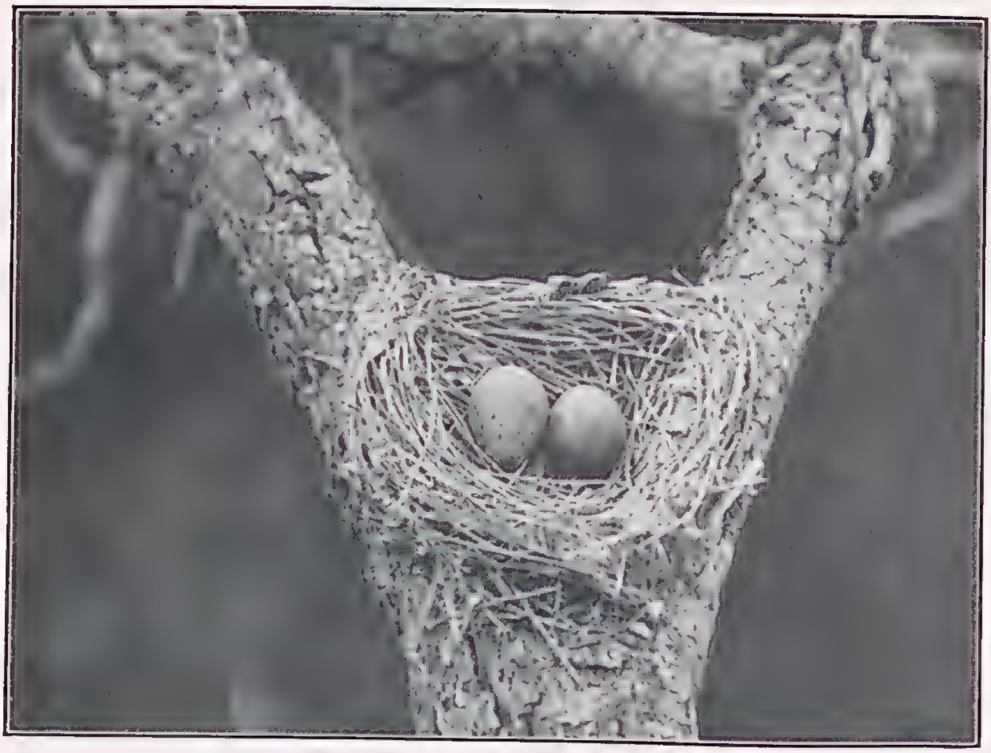
Shy Ground-Wren (*H. cauta*).—Plentiful in the mallee. See *The Emu*, Vol. XVII, p. 87.

Striated Field-Wren (*Calamanthus fuliginosus*).—Breeding early (August) and freely in the cutting grass at Tooradin.

Rufous Field-Wren (*C. campestris*).—Birds secured at Kow Plains during September, 1908. See *The Emu*, Vol. VIII, p. 134.

Speckled Warbler (*Chthonicola sagittata*).—Very plentiful near Melbourne. A nearly breeder, very local, and foster-parent to the Fan-tailed, Black-eared and Horsefield Bronze-Cuckoos.

Pilot-Bird (*Pycnoptilus floccosus*).—For full notes see *The Emu*, Vol. XIV, p. 192. In *The Emu* (Vol. XXV, p. 305) I gave the dates for clutches of fresh eggs as October 1, and second clutches as December 30. I must amend this because on October 16, 1927, I saw the birds, accompanied by large young, in the scrub. This pair of birds was kept under observation and on October 30 the female was sitting on a pair of fresh eggs. These would be hatched in about 16 days, and



NEST AND EGGS OF BLACK-FACED CUCKOO-SHRIKE.

Photo. by O. Webb.

HELMETED HONEYEATER AT NEST.

Photo. by A. H. Mattingley.

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allowing for another 16 days in the nest it is very probable that another pair of eggs would be laid about December 30. Very local.

Brown Song-Lark (*Cinclorhamphus cruralis*).—Migratory. Eggs taken in the mallee on an open grassy paddock.

Rufous Song-Lark (*C. mathewsi*).—Migratory. Eggs taken at Croydon on November 1, 1927. Close by a pair of *C. cruralis* was apparently nesting.

Striated Grass-Wren (*Amytornis striatus*).—Stationary; plentiful. See *The Emu*, Vol. IX, p. 232.

Rufous Bristle-Bird (*Dasyornis broadbenti*).—Stationary. Breeds freely at Anglesea and Lorne.

Little Grass-Bird (*Megalurus gramineus*).—Fairly plentiful in southern Victoria.

Reed-Warbler (*Acrocephalus australis*).—Migratory; arrives about mid October. Seen breeding at Launching Place.

Golden-headed Fantail-Warbler (*Cisticola exilis*).—Migratory; arrives early in the spring. An easy method to find the nest is to put the birds up and retire a little. The female always returns with a bill full of whitish down which forms the lining of the nest. When the eggs are first laid the nest is very meagrely lined, but as incubation proceeds it becomes a very cosily lined structure. Maximum 5 eggs.

Southern Emu-Wren (*Stipiturus malachurus*).—Plentiful in the dense scrubs at Frankston and Anglesea. Breeds early.

Mallee Emu-Wren (*S. mallee*).—Becoming rare in the mallee owing to the disappearance of the scrub and to bush fires. For further notes see *The Emu*, Vol. X, p. 336. Inhabits the porcupine grass, in which it nests.

Superb Blue Wren (*Malurus cyaneus*).—Very plentiful everywhere. This bird certainly moults and loses its brilliant blue and at depth of winter I have only seen one in full plumage.

Black-backed Blue-Wren (*M. melanotus*).—This bird is fairly plentiful in the mallee and is one of the most beautiful of the genus. Like the preceding form, it moults and loses its brilliancy. Birds assuming full plumage have been taken by us in September.

Blue-and-White Wren (*M. cyanotus*).—Inhabits the saltbush at Kow Plains. The male is a very wary bird.

Purple-backed Wren (*M. assimilis*).—Very numerous in the mallee and particularly likes the tea-tree and porcupine country.

Wood-Swallows (*Artamus personatus, A. superciliosus, A. cyanopterus*).—All common.

Orange-winged Sittella (*Neositta chrysoptera*).—A fairly common bird near Melbourne, having great localism. Nests often found in the same fork in succeeding years. This we know by the types of eggs. In 1927 I found an egg of the Fantailed Cuckoo in a nest of this bird.

Black-capped Sittella (*N. pileata*).—Evenly distributed in the larger mallee and pine country, where I have taken the eggs and seen young in the nest. In the latter case five matured birds were feeding the fledglings.

Treecreepers (*Climacteris picumnus, C. leucophœa, C. erythrops, C. affinis*).—See *The Emu*, Vol. XXI, p. 32.

Mistletoe-Bird (*Dicæum hirundinaceum*).—Well distributed and fairly numerous at Beaconsfield. Nidification is undertaken by the female alone, at which time the male is very noisy and pugnacious. The female flies low to the nest and the male higher. They are very local and double-brooded.

Spotted Pardalote (*Pardalotus punctatus*).—A very common species. Some of its burrows are drilled into sides of rabbit-warrens and once I saw the birds breeding in the hollow of a huge white gum. Maximum five eggs.

Yellow-tailed Pardalote (*P. xanthopygius*).—Plentiful in the mallee and breeds at any time of the year, but mostly in September. Maximum four eggs.

Striated Pardalote (*P. striatus*).—Evenly distributed in Victoria.

Red-tipped Pardalote (*P. ornatus*).—Very plentiful in the mallee. I saw an irruption of these birds at Carwarp in September, 1923. There must have been many hundreds of them, all feeding on the ground after the manner of *Acanthiza chrysorrhoa.*

Grey-backed Silvereye (*Zosterops halmaturina*).—Very common.

White-naped Honeyeater (*Melithreptus lunulatus*).—Breeds freely at Mitcham in October and January. Many nests containing eggs of the Pallid Cuckoo.

Black-chinned Honeyeater (*M. gularis*).—Noted at Parwon and the You-Yangs. A nest, subsequently deserted, was found being built in a golden wattle in full bloom. Another nest contained young.

Brown-headed Honeyeater (*M. brevirostris*).—Fairly well distributed all over Victoria. I have taken the eggs at Ringwood and in the mallee. In the former case the nest was found by seeing the bird taking hair from the back of a horse, a favourite trick of *Meliphaga leucotis.* This Honeyeater flocks in autumn and winter.

Striped Honeyeater (*Plectorhyncha lanceolata*).—In 1907 this bird was very numerous at Pine Plains, but since then has only occasionally been noted.

Black Honeyeater (*Myzomela nigra*).—Seen on three or four trips to the mallee. In 1924 they were found breeding at Tutye. The nests were placed on fallen and dead pines and were similar to those of *Micrœca fascinans* but more substantial.

Eastern Spinebill (*Acanthorhynchus tenuirostris*).—Very plentiful near Melbourne. Female calls from the nest.

Tawny-crowned Honeyeater (*Glyciphila melanops*).—Common in the mallee and occasionally seen on heathy coastal strips. The song is a sweet and plaintive one of four liquid notes.

White-fronted Honeyeater (*G. albifrons*).—An irruption of these birds to the mallee occurred in 1921 and many nests containing the full complement of three eggs were seen. Nests placed on porcupine grass or other small shrubs.

Painted Honeyeater (*Grantiella picta*).—Two records only—one seen in the mallee and the other at Parwon.

Regent Honeyeater (*Zanthomiza phrygia*).—Recorded from Whittlesea and Anglesea.

Lewin Honeyeater (*Meliphaga lewini*).—This beautiful bird is very sparingly distributed through the gullies of the Dandenongs and I have often seen it feeding on the fruit of a *Bursaria.* A bird was seen gathering moss from the trunk of a blackwood, and the nest containing two very beautiful eggs was later on found in a musk-tree. Very local.

Singing Honeyeater (*M. virescens*).—A pair of birds had young in a tea-tree at Sorrento at Christmas, 1923. In December, 1927, another nest in the same bush also held young.

Fuscous Honeyeater (*M. fusca*).—Observed at Stawell, September, 1908.

Yellow-faced Honeyeater (*M. chrysops*).—Very common; its loud and rollicking call being heard everywhere. Rears many young of the Pallid Cuckoo.

White-eared Honeyeater (*M. leucotis*).—Common in all places visited.

Helmeted Honeyeater (*M. cassidix*).—Rare. Once seen on the Cardinia Creek at Beaconsfield.

Yellow-tufted Honeyeater (*M. melanops*).—A common bird at Stawell, where they were breeding freely in 1908. A few at Melton nearer Melbourne.

Purple-gaped Honeyeater (*M. cratitia*).—Plentiful in the mallee, where we have found nests containing eggs and young. A wild and wary bird.

Yellow-plumed Honeyeater (*M. ornata*).—Very plentiful in the mallee and in its habits and nidification is a replica of its cousin, *M. penicillata.*

Yellow-fronted Honeyeater (*M. plumula*).—A colony of this closely-allied form was noticed at Tutye in September, 1921.

White-plumed Honeyeater (*M. pencillata*).—Plentiful everywhere.

Crescent Honeyeater (*Phylidonyris pyrrhoptera*).—Numerous in the gullies of the Dandenongs. Places its nest in the top of swordgrass.

Yellow-winged Honeyeater (*Meliornis novæ-hollandiæ*).—Common; prefer the banksia scrubs.

Bell-Miner (*Manorhina melanophrys*).—Plentiful and on the increase. Rears many young of *C. pallidus.*

Noisy Miner (*Myzantha melanocephala*).—A common bird.

Dusky Miner (*M. obscura*).—Plentiful in the mallee and breeding in colonies. Maximum four eggs.

Little Wattle-Bird (*Anthochœra chrysoptera*).—Plentiful in the banksia and tea-tree at Frankston.

Red Wattle-Bird (*A. carunculata*).—Common all over the State.

Spiny-cheeked Honeyeater (*Acanthagenys rufogularis*).—Very common in the mallee and breeding at the You-Yangs near Geelong.

Blue-faced Honeyeater (*Entomyzon cyanotis*).—A common bird on the Murray.

Noisy Friar-Bird (*Philemon corniculatus*).—Breeds freely at Alexandra. Also observed breeding at Whittlesea and Ferntree Gully.

Little Friar-Bird (*P. citreogularis*).—Observed on the Murray swamps.

Pipit (*Anthus australis*).—Plentiful everywhere.

Horsefield Bush-Lark (*Mirafra javanica*).—Fairly plentiful in good cover at Parwon.

Beautiful Firetail (*Zonæginthus bellus*).—Only three records; not breeding.

Diamond Firetail (*Z. guttatus*).—Fairly plentiful near Melbourne; also seen in the mallee. Maximum seven eggs.

Red-browed Finch (*Ægintha temporalis*).—Very common bird near Melbourne.

Olive-backed Oriole (*Oriolus sagittatus*).—Migratory; arrives in Southern Victoria towards the end of September. Returns to the same spot year after year. I have seen nests placed on the same bough or in the same tree often. Fairly plentiful and very pugnacious when nesting. Double-brooded.

Satin Bower-Bird (*Ptilonorhynchus violaceus*).—Plentiful at Whittlesea some years ago but of late I have looked in vain for the birds.

Spotted Bower-Bird (*Chlamydera maculata*).—Saw a bower of this bird at Pine Plains in September, 1907.

Raven (*Corvus coronoides*).—Common; very plentiful in the mallee.

Little Crow (*C. bennetti*).—Two or three sets of eggs were taken by us in the mallee at Manya.

White-winged Chough (*Corcorax melanorhamphus*).—Common everywhere. Maximum eight eggs.

Pied Currawong (*Strepera graculina*).—Nomadic. Birds seen at Healesville and Selby and the peculiar notes heard at Toolangi and Wandong.

Black-winged Currawong (*S. melanoptera*).—Plentiful in the mallee, where they were found breeding. See *The Emu*, Vol. VIII, p. 132.

Grey Currawong (*S. versicolor*).—A stationary and very local species at Mitcham and Ringwood, where they appear to be thinly distributed. An early breeder and double-brooded.

Grey Butcher-Bird (*Cracticus torquatus*).—Well distributed nearer Melbourne and very plentiful in the mallee.

Black-backed Magpie (*Gymnorhina tibicen*).—Plentiful in the mallee.

White-backed Magpie (*G. hypoleuca*).—A common bird in southern Victoria.

Birds Observed During the R.A.O.U. Camp-Out at Nornalup, South-West Australia.

By E. ASHBY, F.L.S., and A. S. LE SOUEF, C.M.Z.S.

THE R.A.O.U. camp-out during October, 1927, was held at Nornalup, on the Deep River, about sixty miles west of Albany, Western Australia. To those familiar with the western State this district forms a striking contrast to the rest of the country. With a rainfall of sixty inches and a red soil, it supports a heavy forest, and on all sides one sees a dense timber growth. The trees are mainly the white-barked karri (*Eucalyptus diversicolor*), the rough-barked jarrah (*E. marginata*), the large-fruited *E. calaphylla* and the giant red tingle gum (*E. jacksoni*). Groups of casuarina and hazel form the secondary growth, while the ground is generally covered with *Crowa augustifolia* and bracken-fern. The country is remarkably like Gippsland, but the typical west is recalled by the grass trees (*Xanthorrhœa*), red-flowered boronia, and other beautiful wild flowers for which the State is famous. To the south of our quarters lay a belt of coastal hills, where the sandy terrain was covered with shrubs, blady-grass and wild flowers of many kinds. These were intercepted with clumps of grass trees and *Agonis*.

With such widely different country available one would expect to find a wealth of bird-life, but the striking thing about the avifauna of the district was the number of absentees and the comparative scarcity of many species present. A possible reason is that some migratory birds invade this wet and cold district later in the year, or perhaps the pairing season had not commenced, and some species were at the time of our visit voiceless. One of the reasons for visiting this part of the State was to try to find the long-lost Noisy Scrub-Bird and the Black-throated Whip-Bird; but although carefully sought, neither of these was seen nor heard. Large areas of unoccupied country had been burnt in order to clear the way for survey parties. Around Nornalup only small patches of the original and almost impenetrable hazel scrub were left. However, there is a very large forest area, much of which must yet be in its primeval state and harbour its original inhabitants. Numerous sea-birds, including Albatrosses (*Diomedia* sp.) and Shearwaters (*Puffinus* sp.), were seen off the southern coast.

Following is a list of the birds noted, an asterisk denoting specimens secured:

Brown Quail (*Synoicus australis*).—Quail provisionally identified as this species were often flushed on the coastal hills.

Western Swamp-Hen (*Porphyrio bellus*).—Noted in the water-holes towards the coastal hills.

White-breasted Cormorant (*Phalacrocorax fuscescens*).—Seen in the Inlet, together with the Little Pied Cormorant (*Microcarbo melanoleucus*).

Black Cormorant (*P. carbo*).—Seen in some numbers on the river at Denmark, and one specimen in a small, tree-covered water-hole near Nornalup.

* Caspian Tern (*Hydroprogne caspia*).—A tiny island, about thirty feet in diameter, was occupied by a pair of Caspian Terns, several Silver Gulls, and a pair of Pelicans. The Terns and Gulls had eggs and the Pelicans were reported to nest on this spot.

Crested Tern (*Sterna bergii*).—Several seen flying over the Inlet.

Silver Gull (*Larus novæ-hollandiæ*).—Common about Nornalup. How tame this species will become is shown by their flying up to meet the transcontinental train, on its arrival at Port Augusta, in the hope of getting food that passengers at breakfast may throw to them.

Pacific Gull (*Gabianus pacificus*).—Several noted on Nornalup Inlet.

Black Swan (*Chenopis atrata*).—A flock was disturbed in the Inlet. As they rose the flashing of their white wings against the dark background of the forest made a striking picture.

Grey Duck (*Anas superciliosa*).—Odd pairs were seen in Deep River. This species is very partial to rivers. It has been frequently noted on the Snowy and its tributaries, where young broods have been seen at Christmas.

Musk Duck (*Biziura lobata*).—Common on the Inlet. Their distinctive call, like a drop of water falling into a well, was often heard.

Wedge-tailed Eagle (*Uroætus audax*).—One seen sailing over the forest at Nornalup.

Swamp Harrier (*Circus approximans*).—One seen.

* Brown Hawk (*Falco berigora*).—Fairly plentiful on the coastal hills. A male bird flushed from a nest had its stomach filled with small lizards. The clutch of two eggs were very different in colour, one being heavily marked with dark brown blotches and the other lightly freckled with pale brown.

Boobook Owl (*Ninox boobook*).—Heard near the camp.

Purple-crowned Lorikeet (*Glossopsitta porphyrocephala*).—Very numerous among the flowering tree-tops.

* White-tailed Black Cockatoo (*Calyptorhynchus baudini*).—These birds were seen in flocks, and had evidently not paired for the breeding season. One pair nested every year in a tall, dead tree close to the house in which we were staying. Mr. Thompson, our host, noted that the parents fed the young every morning. One day, when the young one had been outside the nest for some time, he heard the parents making a peculiar call from another tree close by, and at the same time making diving flights. They were evidently trying to make the youngster copy their example, and thus find the use of his wings. After some time it cast itself into the air, and followed the old birds away. The food of *C. baudini* seems to be the seeds contained in the nuts of *E. calophylla.*

* Western Rosella (*Platycercus icterotis*).—Odd pairs seen in the forest.

Twenty-eight Parrot (*Barnardius semitorquatus*).—Scattered through the forest, mostly in the open glades.

Laughing Kookaburra (*Dacelo gigas*).—This familiar eastern bird was introduced into the western State about the year 1900, and is now established in several parts. One pair was noted in the township of Denmark.

Pallid Cuckoo (*Cuculus pallidus*).—The familiar scale note of this Cuckoo was heard on one or two occasions.

Fan-tailed Cuckoo (*Cacomantis flabelliformis*).—Fairly common in the forest.

Welcome Swallow (*Hirundo neoxena*).—Present.

Tree-Martin (*Hylochelidon nigricans*).—In fair numbers.

* Western Grey Fantail (*Rhipidura flabellifera preissi*).—The cheerful note of this friendly little Fantail was quite a feature of the forest. The black spot or band, common to all examples from the southern or eastern States, is absent in the Western Australian form, being replaced by darkish grey. It differs also in the greyish upper plumage and in the almost absence of light spotting on the wing-coverts. It seems to be intermediate between the eastern bird and *R. phasiana* of the Northern Territory.

Wagtail (*Rhipidura leucophrys*).—Twice noted in the clearing close to the house. Mr. Thompson stated that the Wagtail only came to the district after land had been cleared.

Restless Flycatcher (*Seisura inquieta*).—One pair was nesting high up in a giant karri.

Jacky Winter (*Micrœca fascinans assimilis*).—A pair of these friendly little birds was near the camp. The voice was not the same as the eastern bird, being more subdued.

* Scarlet Robin (*Petroica multicolor*).—Several seen in the more open country. The white frontal spot is no larger than in South Australian specimens, and does not seem to support the acceptance of *P. campbelli* even as a sub-species.

* Western Yellow Robin (*Eopsaltria griseogularis*).—A pair secured. The sexes are similar and they do not exhibit any material difference as compared with skins from near Perth or further inland at Kojunup; but as regards specimens from South Australia the rump is yellower in the Western Australian examples.

* Golden Whistler (*Pachycephala pectoralis occidentalis*).—This beautiful bird was the most charming songster of the western bush and fairly numerous. Two male skins from Nornalup do not show any marked difference from the eastern form in any part of the plumage other than the tail. The tail is very distinct from the New South Wales specimens. The terminal black half of these feathers is smaller in the western birds, and the basal half of the tail feathers in these shows no olive, but instead is silvery-grey, especially so in the outer webbing. All southern birds from Victoria, through South Australia to Nornalup in Western Australia, have the basal half of the tail feathers grey, and in the extreme western form silvery-grey. The black terminal portion in skins from Victoria is as large in area as in the typical form from New South Wales. This feature decreases in area as one proceeds west.

* Western Shrike-Thrush (*Colluricincla rufiventris*).—The call of this species is not quite the same as the eastern form.

Western Warbler (*Gerygone fusca*).—The plaintive, halting song of this tiny bird was often heard in the tree-tops, but it is not at all easy to see the singer.

* Broad-tailed Thornbill (*Acanthiza apicalis*).—Not uncommon at Nornalup. Three skins were made. One of these was shot by one of the party in mistake for a *Malurus*, because of its partially cocked tail. This forms an interesting comment on the observations made by one of us in 1920, and published in *The Emu*, Vol. XX, p. 134 (Ashby), in which the habit of elevating its tail was specially noted; it was chiefly owing to his observations that this species was accorded full specific rank in the Checklist. On the 7th of November last one

of us visited Mr. W. H. Loring at Bickley, when Mr. Loring referred to Ashby's article, and said that it was quite correct that *A. apicalis* possessed the un-acanthiza-like habit of elevating its tail, but that at one season of the year a few birds were present which did not exhibit this habit, and he wondered whether it was possible that they possessed two species. We shall look to Mr. Loring to elucidate this problem.

* Spotted Scrub-Wren (*Sericornis maculatus*).—It is unfortunate that only one example was secured (a male). The bird was certainly not breeding, and did not seem to be even pairing, and this may account for the almost complete silence of the species of Nornalup. On only one occasion was its familiar call-note heard. Specimens were seen a few times in some thick hazel scrub not far from the house. On being disturbed they flew into the low boughs of small bushes and silently disappeared.

* Splendid Blue Wren (*Malurus splendens*).—This species, the bluest of a charming and brilliant group, was scattered in limited numbers throughout open, heathy country bordering the southern coastal hills. A fine male was secured. It does not differ from examples from near Perth, but it is interesting to note that the bases of the feathers of the lower back, immediately in front of the rump, are black, and not grey as in the other feathers of the back. This is surely an indication that this species had an ancestry in common with both *M. melanotis* and *M. callainus.*

Dusky Wood-Swallow (*Artamus cyanopterus*).—A few in the clearing round the house.

* Rufous Tree-Creeper (*Climacteris rufa*).—Generally distributed amongst the timber. As might be expected they are of a darker plumage and richer colouration than specimens collected in South Australia.

Red-tipped Pardalote (*Pardalotus ornatus*).—Rather common. From its habit of staying in the tops of the highest trees it is more often heard than seen.

Spotted Pardalote (*Pardalotus punctatus whitlocki*).—Note heard once.

Western Silvereye (*Zosterops australasiæ*).—Common. Found a nest in a shrub (*Crowa augustifolia*), five feet from the ground.

Western Spinebill (*Acanthorhynchus superciliosus*).—Seen occasionally amongst the undergrowth of the forest, and sometimes getting honey from the flowers of a *Dryandra,* which grew in small clumps along Deep River. Its speed and activity are amazing.

Tawny-crowned Honeyeater (*Gliciphila melanops*).—The plaintive call of the Tawny-crowned Honeyeater was heard on the heathy country near the coastal hills.

* Brown Honeyeater (*Gliciphila indistincta*).—The sweet reed-warbler-like song of this bird was one of the charms of the forest.

* Yellow-winged Honeyeater (*Meliornis novæ-hollandiæ*).—A very common bird everywhere.

* White-naped Honeyeater (*Melithreptus lunulatus whitlocki*).—This bird was exceedingly numerous, but generally kept in the tree-tops 150 feet above. It would be quite safe to say that they numbered thousands throughout the district. A pair was collected and it was at once noted that the colour of the bare eyelid was quite different from *M. lunulata chloropsis* from Perth and farther north, as also from the eastern bird. One of us on returning home compared these skins with skins in his collection, and found that Nornalup birds had been described by Mathews from Wilson's Inlet (the same district), so that they are tototypes of Mathews' *whitlocki.* A Wilson Inlet male skin was already in the collection; the following note is on the label:

"Iris brown, skin chalky-white above, bluish-grey below." The notes on our Nornalup skins read: "Iris walnut, upper eyelid bare skin right across the eye white, bare skin exactly below the eye blue-grey." Of the female the notes are: "Similar except that the iris is described as purplish-red, possibly caused by a suffusion of blood." The form round Perth which was described by Gould under the name of *M. chloropsis*, has a greenish eyelid, and both it and *whitlocki* from Nornalup and Wilson's Inlet are considerably larger birds than *M. lunulatus* from the southern and eastern States; also the black throatal patch at the base of the beak is in the western birds distinctly larger. The southern and eastern birds have a bright orange-red eyelid.

*Red Wattle-Bird (*Anthochæra carunculata*).—The extraordinary, loud notes of this interesting bird were to us, visitors from the east, one of the strangest sounds in the bush. The typical eastern Little Wattle-Bird nests at Blackwood, South Australia, and although this species has a wonderful repertoire of vocal sounds, the calls of the western birds are entirely dissimilar, and still more striking. If the very distinctive character of the call-notes were taken into consideration, with its less striking differences in plumage, it surely might be considered worthy of full specific rank, as accorded it by Gould.

Grey Bell-Magpie (*Strepera versicolor plumbea*).—Numerous throughout the forest country.

Notes from Southern Tasmania.—Lying in my tent on the bank of the Picton River, southern Tasmania, listening to the wonderful chorus of Shrike-Thrushes seeking their breakfast in the tall stringybarks, and watching the early morning mists rising thickly from the warm river, the air is suddenly rent by the screaming of a flock of Sulphur-crested Cockatoos. Presently a Sparrow-Hawk appears and, selecting a straggler, albeit twice as big as himself, attacks him vigorously. For a few minutes a terrific struggle takes place in the clear space above the river, the Cockatoo turning, dodging and screaming, while the Hawk tries to get a strangle-hold. Soon the Cockatoo takes refuge on a dry branch whence, with much screaming and manifest terror, he watches his enemy, perched a few yards from him. Now the remainder of the flock rally round and all fly off in a more or less compact formation, followed at some distance by the Sparrow-Hawk, who again finds a sufficiently isolated bird and attacks. But the finish I did not see so cannot say if the Hawk got his breakfast of Cockatoo that morning.

Black Bell-Magpies (*Strepera fuliginosa*) are numerous on the river banks just now, feeding on the berries which there abound. I have never seen *Strepera* attack or attacked by a Hawk—apparently there is a truce between them and the birds of prey. If so, why?

I heard in this forest (but did not see) an undoubted Black-and-White Fantail. I have recently heard of this bird being frequently seen in various parts of Tasmania.—G. MURRAY ANDERSON, Raggal, Tasmania (February 26, 1928).

A Wave-guarded Kingdom of Birds.

By Tom Iredale, Sydney.

The month of November, 1927, was near its close when Mr. A. H. Chisholm and I, acting on "information received," found ourselves standing on the beach fronting the little town of Port Kembla, some sixty miles south of Sydney. Due east of us lay two members of the loose group known as the Five Islands, and on those two isles, so report had it, were birds, birds, birds. What species were they? We did not know. Local fishermen spoke vaguely of Gulls and Mutton-Birds, but a casual photograph by one of them indicated that Crested Terns formed a large portion of the population. Anyway, there was sufficient enticement in the prospect of seeking ornithological treasure on little known islands, albeit so close to Sydney, and we set out blithely in the fisherman's row-boat, our spirits undampened by the intimation that a motor-boat could not live in the surf that boiled about Bird Island.

In the distance a rocky islet of barren appearance was indicated as the goal, and 'twixt it and us a somewhat turbulent channel, at times fraught with danger, intervened. A southerly, not unexpected, might make the return passage impassable without great risk, and a more disheartening atom upon which to be marooned never greeted the vision.

Nearer, the rock of interest grew more attractive as birds could be seen flying around in profusion, though to modify our excitement a strong surf beat all round its base. Our boatmen, however, knew the exact place where landing could be effected, not with ease nor exactly with safety, but still possible under favourable conditions. It was borne upon us that the islet guarded well its treasures from the despoiler without much chance of trouble, so after our experience we are not afraid of the birds receiving much interruption in their breeding duties. As the waves surged up the broken rock the boat was steered in and at the opportune moment we jumped to the weed-covered, slippery boulder and fell and scrambled out of the way of the succeeding roll.

Landed, we clambered up the short, steep, rocky face to meet with thousands of birds, Crested Terns and Silver Gulls, sweeping and crying, shrieking and flying, so that it was impossible to distinguish the movements of any individual. Unafraid, they settled again and only rose when we approached within a couple of yards; beyond that distance they merely looked and in the case of the Terns abused us for intruding upon their domain. We were unable to translate exactly their language, but the querulous tone was sufficient to indicate completely their meaning and attitude towards us. The outer fringe of the colony which first met us consisted of Gulls' nests with hard-sat eggs, usually three in number and of the usual sombre coloration; a scant nest of grass was usually prepared in a hollow made in the soft soil present on the top of the rock where the grass grew. At a few places near the top prickly pear flourished and in the shelter of this Gulls had also nested. In a few instances Gulls had built quite a substantial nest upon a platform of broken-down pear.

Passing the outer zone of the Gulls we reached the main colony of Terns, which by this time was in a state of uproar, for the majority of the birds had hatched their young, which were running about in every direction. Their parents croaked and warned them apparently to take care of themselves. This they attempted to do by flocking together, pushing and huddling just like frightened sheep. Both Gulls and Terns seemed to do the same thing, and though the first Gulls' nests we had met with contained eggs there were many young of all ages and sizes right up to youngsters sprouting flying wings. We were interested in the behaviour of the parent birds as they had previously received no molestation from human beings and they certainly showed no fear. While they moved away on our approach, when we stopped they resumed their positions if beyond a yard or so. They would not allow us to handle them but otherwise we were able to move among them quite freely. A small colony of Tern's eggs, a few dozen laid in the space of a few square yards, showed great variability, a clear cream ground of varying shades being boldly blotched with brown. No attempt at nest-making was made by these birds. The islet could be apportioned into two sections of nearly equal extent, one bare rock, the other soil-covered, growing grass and prickly-pear. The whole of the nests were confined to the latter area, not a single bird being found on the former. This is noted as elsewhere both Gulls and Terns have been found nesting on bare rock.

One of the most pleasing features of our trip was the observation of the use of the crest by the Tern. The crest was raised at any provocation, and until the fears of the bird were placated it was not lowered. The crest has not been commonly photographed in Australian waters and hitherto no photograph has appeared in *The Emu.* The crest certainly enhances the bird's appearance, as when it is flattened the head appears too sleek and snake-like and the black cap overhanging the eye gives the bird rather a spiteful aspect, which its vicious digs, with its long strong bill, at its intruding neighbours seemed to confirm; but really it belied its looks. Through the scatter of the young these lost their sense of direction and now and then one would snuggle up to a fancied parent. On account of our proximity this might not take notice of the intrusion until the nestling had crawled right

"THE CREST ENHANCES THE TERN'S APPEARANCE" (see p. 272).

Photo. by A. H. Chisholm.

up, when suddenly there would be a scuffle and the rejected youngster would hastily scramble away from the offended foster-mother.

The variation in the colour of the chicks of the Terns was notable, though of course the colour-pattern remained unchanged. In some the ground-colour was almost pure white, the dark tips being also nearly obsolete; in others the ground-colour became darkened to a pale yellowish-brown with the dark markings profuse and black. No such variation appeared among the Gull nestlings, a pallid uniformity prevailing throughout. The half-grown young Gull showed a plumage practically inseparable from that of the Gull-billed Tern, which suggests a close alliance. It may be observed that these smaller Gulls also have a tern-like flight.

Prudence on the part of our boatmen, who kept the weather closely in mind, caused us to move off the rocky islet sooner than we wished. However, some solace was offered by the more accessible, larger island nearer the mainland, where Penguins and Mutton-Birds were reported. No Gulls or Terns nested on this place, though it is possible one or two may have attempted close to the islet. We dug out some Little Penguins (*Eudyptula minor*) and were rewarded in two ways. We found the most savage bird we had ever met with in the form of a mother with a half-grown young one in the well-known black ball of wool stage. This mother was furiously mad, not in protection of her young, for which we would have forgiven her, but apparently hysterically insane. Indeed, after attacking us she turned furiously on her youngster and caused its flipper to bleed. To counteract this unpleasant creature, we dug out a pair of the most beautiful and tractable little Penguins possible to see. Twins, fully plumaged with little ruffs of fur adorning their pristine gleaming blue coats, they presented an unforgettable picture. Many other Little Penguins were nesting among the long grass, and their tracks could be traced from the sea right across the island.

The Mutton-Birds (Shearwaters) had not come in to sit but had been digging their burrows and many dead birds were lying about, which enabled us to determine the species as the Wedge-tailed form of the north (*Pufflnus pacificus*), not the Short-tailed species of the south. The cause of the death of these birds could not be conjectured, and we were more puzzled still when along the top of the island among the scrub we found many remains of the White-faced Storm-Petrel. These were generally in groups numbering from seven to sixteen in a patch, and in every case the skull had been crushed. As these birds settle after dusk and all were killed at the time of settling we have been unable to solve the mystery of the assailant. In the time left we could not discover any inhabited nesting-holes though probably many existed. The southerly had now arrived and with it a little rain, so that matters became uncomfortable, a big surf breaking on the islet we had left. However our luck held, and though we got a drenching from waves on our more dangerous homeward trip we were able to subscribe to the view that the experience was well worth while.

Birds of the Grampian Range, Victoria.

By MARC COHN, R.A.O.U., Bendigo, Victoria.

I HAD frequently been told that birds were scarce in the Grampian Mountains, and therefore was agreeably surprised, during a stay of two weeks on the range in September, 1927, to find that not only were they as numerous as in most other parts of the State, but the variety was also well up to the average. There are probably many species present that were not seen by me.

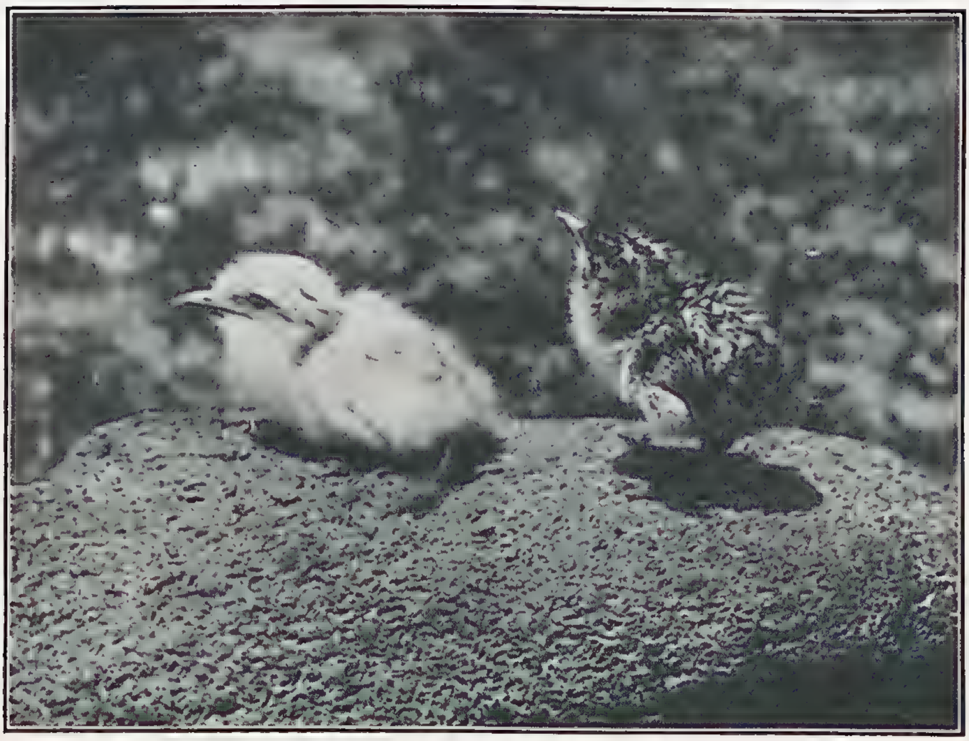
By far the commonest bird was the Yellow-winged Honeyeater (*Meliornis novæ-hollandiæ*), with the White-naped Honeyeater (*Malithreptus lunatus*), a good second. I was very disappointed not to find a nest of the former, which was new to me. On many occasions I thought from the actions of several pairs that their nests were close. The White-naped Honeyeaters were commencing to build in the tops of the highest red gums (*Eucalyptus rostrata*). These small Honeyeaters are not unlike the Sittellas in their manner of hunting for insects or cobwebs on the tree-trunks.

I was informed that Emus were plentiful in the Victoria Valley, but was unable to stalk them. The call of the Peaceful Dove (*Geopelia placida*), was heard on one occasion. Bronze-wings (*Phaps chalcoptera*), were very tame; several were seen in the gardens and yards of some of the houses, and one pair on the picnic-ground.

A magnificent specimen of the Wedge-tailed Eagle (*Uroætus audax*), sailed up and down the valley of Fyan's Creek almost daily. From the top of Mount Rosea (3,095 feet), this Eagle looked particularly graceful.

While my companions and I were having lunch on the top of this mount, a Falcon sailed overhead. Suddenly another rose from somewhere below us; evidently from its nest. It immediately attacked the first bird, screaming as it did so. We lay on our backs and watched these masters of the air. Several times they came close enough for us to recognize them

"BEAUTIFUL AND TRACTABLE LITTLE PENGUINS" (see p. 273).



COLOUR DISTINCTIONS OF BABY CRESTED TERNS.

Photos. by A. H. Chisholm.

as Peregrine Falcons (*Falco peregrinus*). The second bird was unable to drive the intruder away, so a larger bird, evidently the hen, rose from the same place below us and successfully helped her mate to drive the other away; then she returned to her nest while he sailed round and round above. One Brown Hawk (*Falco berigora*), and a Nankeen Kestrel (*Falco cenchroides*), were seen, several times, on the golf-links of the Bellfield Hotel. One night I heard an Owl, but was unable to identify it.

I was told that Black Cockatoos were present, but did not see any. Gang-gang Cockatoos (*Callocephalon fimbriatum*), were often seen; one pair was always close to the boarding-house. Their call has been well described as suggesting the sound of a cork being drawn from a bottle. With the exception of one Rosella (*Platycercus eximius*), Crimson Rosellas (*P. elegans*), were the only Parrots seen. These were everywhere, in pairs and in flocks of four, six, and eight. I spent an interesting morning watching one pair at their nest, which was in a hole about 14 feet up in the trunk of a dead tree. As I approached, one bird flew from the hole and another from a nearby branch. I sat and waited until they returned, which they did in about fifteen minutes. One flew to the hole, inspected it carefully, then looked round suspiciously and entered. Five minutes later another pair (one in immature plumage), arrived and also inspected the hole for several minutes before the mate of the sitting bird saw fit to interfere. He did not hurry himself even then, but flew quietly to the hole, upon which the others flew away.

Kookaburras (*Dacelo gigas*), very numerous; three visited the yard of the house every day. I heard the Pallid Cuckoo only once. A friend of mine, who is a resident, told me about some strange Thrushes that were visiting his place, for the first time, this year. They were, he said, longer than the Grey Shrike-Thrush and had rufous breasts. He was quite sure that they were Thrushes. I was sceptical, but with thoughts of the northern Rufous Thrush, I spent an afternoon in his garden. At length a Fantail Cuckoo came into the garden and my friend proudly pointed to one of his "Thrushes"! The Fantail Cuckoo appeared to be interested in a pair of Speckled Warblers (*Chthonicola sagittata*). Bronze Cuckoos (*Chalcites basalis*), Fairy Martins (*Hylochelidon ariel*), and Jacky Winters (*Micrœca fascinans*), were present. A pair of Welcome Swallows (*Hirundo neoxena*), tried hard to build a nest under the verandah of the boarding-house, but every time that they started a nest the proprietor pulled it down. Swallows were very numerous.

Grey Fantails (*Rhipidura flabellifera*), and Restless Flycatchers (*Seisura inquieta*), were also very numerous, the latter calling continuously. Scarlet Robins (*Petroica multicolor*), and Flame Robins (*P. phœnicea*), were plentiful; a pair of the former built about ten feet up in a small messmate stringybark (*Eucalyptus obliqua*). Yellow Robins (*Eopsaltria australis*), were building everywhere—in all manner of places and at all heights. One nest was placed on the top of fronds of common bracken about two feet in height, and another in a six-foot dead sapling; a third nest was prettily situated in a bush of "prickly Moses" (*Acacia verticillata*), and yet another about twenty feet up in a messmate stringybark. Wagtails (*Rhipidura leucophrys*), were along all the creeks, but did not seem to be so numerous as they are elsewhere, nor so numerous as the Grey Fantail.

A beautiful Golden Whistler (*Pachycephala pectoralis*), filled the air with song on the Mount Victory Road. Grey Shrike-Thrushes, White-browed Babblers (*Pomatostomus superciliosus*), Grey-crowned Babblers (*P. temporalis*), Brown Thornbills (*Acanthiza pusilla*), Blue Wrens (*Malurus cyaneus*), White-backed Magpies (*Gymnorhina hypoleuca*), Spotted Pardalotes (*Pardalotus punctatus*), Eastern Spinebills (*Acanthorhynchus tenuirostris*), White-plumed Honeyeaters (*Meliphaga penicillata*), Noisy Miners (*Myzantha melanocephala*), Red Wattle-Birds (*Anthochæra carunculata*), and Diamond-Firetails (*Zonæginthus guttatus*), were often seen. I saw only one pair of Black-faced Cuckoo-Shrikes (*Coracina novæ-hollandiæ*), but perhaps it was a little too early, because between Avoca and Ararat I counted twenty in one paddock. Evidently they were migrating and had not yet reached the Grampians. One Australian Ground-Thrush (*Oreocincla lunulata*), and one Eastern Shrike-Tit (*Falcunculus frontatus*), were noted on the Mount Victory Road. A pair of white-fronted Chats (*Epthianura albifrons*), had a nest on the bank of the Fyan's Creek. White-browed Scrub-Wrens (*Sericornis frontalis*), were among the bracken and along the banks of the creeks.

Near Barney's Creek I was surprised to see a pair of Emu-Wrens (*Stipiturus malachurus*). I have never seen Emu-Wrens before and always understood that they preferred low-lying areas. Several Dusky Wood-Swallows (*Artamus cyanopterus*), were mating. Magpie-Larks (*Grallina cyanoleuca*), were very rarely seen, which seemed strange considering that they were plentiful a few miles from the mountains. Tree-Creepers (*Climacteris*), especially the White-throated Tree-Creepers (*C. leucophæa*), were very busy on the tree-trunks; their sweet, trilling call was the note most often heard in the forest. Brown Tree-Creepers (*C. picumnus*), were not so common.

Crescent Honeyeaters (*Phylidonyris pyrrhoptera*), appeared to be confined to one pretty spot called Delhi's Dell, on the

Dairy Creek above the Silverband Falls. Trees, ferns, and other vegetation were very dense here and these birds kept well under cover. Although the Crescents were not seen anywhere else, there were several similar dells on other creeks that I was unable to visit. Several Singing Honeyeaters (*Meliphaga versicolor*), inhabited this dell, but they were also seen elsewhere. White-eared Honeyeaters (*Meliphaga leucotis*), preferred the highest places. One pair was seen on Boronia Peak, another on Mackey's Peak, the next near Signal Rock, and the last pair on Mount Rosea.

There was one small flock of Red-browed Finches (*Ægintha temporalis*), and one of White-winged Choughs (*Corcorax melanorhamphus*). Australian Crows (*Corvus cecilæ*), were very numerous, and Grey Currawongs (*Strepera versicolor*), even more so. Unfortunately, residents were shooting the latter because of the small amount of damage they did to vegetable gardens.

Australian Birds Occurring in New Guinea.

By W. B. ALEXANDER, M.A., C.F.A.O.U., Croydon, England.

IN a recent paper by Messrs. Outram Bangs and James L. Peters on "A Collection of Birds from South-western New Guinea (Merauke Coast and Inland)," published in the *Bulletin of the Museum of Comparative Zoology at Harvard College,* Vol. LXVII (July, 1926) the authors state: "This collection, a recent gift to the M.C.Z. by Dr. Thomas Barbour, was made by Thomas Jackson in 1920-1924, in the general region of Merauke, Dutch New Guinea. This region, opposite Cape York, is an interesting part of Papua, as it has a strong Australian element in its bird-fauna. Several of the forms have apparently not been taken previously in New Guinea and others have been recorded from Merauke only by Van Oort (Nova Guinea, 1909). Unfortunately Jackson's collection contains very few small birds, and gives an impression that bird collecting was far from being a primary consideration with him."

In Ogilvie-Grant's report on the Birds of Dutch New Guinea (*Ibis Jubilee Supplement,* No. 2, 1915), which contains a complete list of the birds of that region, 383 species are included, of which 106 are on the Australian list. In Jackson's collection 95 species of birds are included, of which no less than 48, or just over half, are species found in Australia.

Nine of these are not listed in the R.A.O.U. Checklist (Second Edition), 1926, as occurring in New Guinea, though at least five of them have previously been obtained there and New Guinea should have been included in their range as shown in that list. In these figures I have not included the New Guinea Crow (*Corvus orru*), which the authors regard as a subspecies of the Australian *C. coronoides.* The Checklist Committee accepted the occurrence of three distinct species of Crow in Australia, but several recent authorities have regarded these and the New Guinea Crow merely as races of one species.

The following are the nine species now known to occur in New Guinea, but not recorded from that country in the recent Checklist:

Aprosmictus erythropterus.—The Red-winged Parrot was recorded from the south coast of New Guinea by Wallace in 1861 and by Von Rosenberg in 1864, but Salvadori considered the records erroneous and did not include the species in his *Birds of New Guinea* (1880). It was recorded from Merauke by Van Oort in 1910 and there are specimens in Jackson's collection from Princess Marianne Straits and the Wendoe Mer River. On the label of one skin he noted it as "very common." The specimens have been compared by Dr. Hartert with birds from the Northern Territory and Cape York and he states that they differ in no wise from the northern Australian race, *A. e. coccineopterus* (Gould), of which he considers *A. e. yorki,* Mathews, is a synonym.

Pachycephala melanura.—The Black-tailed Whistler is represented in Jackson's collection by the skin of a female without data. The authors regard this bird as a race of the Golden Whistler (*P. pectoralis*), and not as a distinct species as shown in the Checklist.

Colluricincla harmonica.—The Grey Shrike-Thrush is represented in Jackson's collection by a male "shot on the coast." Dr. Hartert has compared the skin with specimens of *C. h. tachycrypta,* Rothschild and Hartert, from Milne Bay, British New Guinea, and finds that it belongs to this race.

Pomatostomus temporalis.—The Grey-crowned Babbler is represented in Jackson's collection by a male from the Wendoe Mer River and a pair from Princess Marianne Straits. Dr. Hartert finds they are identical with specimens from North Queensland and assigns them to the race *P. t. cornwalli,* Mathews.

Artamus melanops.—A female Black-faced Wood-Swallow was collected by Jackson at Princess Marianne Straits. It does not agree exactly with any described form, but comes nearest to *A. venustus,* Sharpe, from the Northern Territory, though in some respects agreeing more nearly with *A. cinereus*, Vieillot, from Timor. The Checklist Committee decided to regard the Timor bird as a distinct species from the Australian one and used the name *melanops* for the Australian species. But this intermediate New Guinea bird seems to show that this conclusion was incorrect and that all should be regarded as races of one species, for which *A. cinereus* is the earliest name. This is the name used by Messrs. Bangs and Peters and Dr. Hartert.

Entomyzon cyanotis.—A new race of the Blue-faced Honey-eater was described by Van Oort in 1909 from Merauke with the name *E. c. griseagularis.* One obtained by Jackson on the Wendoe Mer River has been compared by Dr. Hartert with four skins from Cooktown, including the type of *E. c. harterti*, Robinson and Laverock, and he finds them identical, so that *E. c. griseagularis* becomes a synonym of *E. c. harterti.*

Mirafra javanica.—The Horsfield Bush-Lark was originally described from Java and occurs in many of the Malay Islands, yet the Checklist gives its range as "A. except S.W.A." A single skin in Jackson's collection is referred to the race *M. h. parva*, Swinhoe, of the Lesser Sunda Islands, but may represent a distinct Papuan form.

Oriolus flavocinctus.—The Yellow Oriole was collected in Princess Marianne Straits by Müller and described by Bonaparte in 1850 as *Mimeta mülleri.* Four specimens from Merauke have been recorded by Van Oort and Jackson obtained a male in the type locality. The New Guinea race, which occurs also in the Aru Islands, is called *O. f. mülleri* (Bonaparte).

Gymnorhina tibicen.—A female Black-backed Magpie was obtained by Jackson at Princess Marianne Straits. It differs from any race previously described and is named *G. t. papuana.* It seems surprising that such a striking and conspicuous bird should not have been discovered previously, even in New Guinea, so much of which is still unexplored.

The discovery of two such characteristic Australian birds as the Grey-crowned Babbler and the Black-backed Magpie in New Guinea is surely quite as remarkable an event ornithologically as the discovery of two striking New Guinea Parrots in North Queensland a few years ago. It seems very probable that when the low-lying country between Frederik Hendrik Island and the mouth of the Fly River is adequately explored other Australian birds will be found there. This part of New Guinea, though the nearest to Australia, is still almost the least known.

Bird Notes from the Australian Museum.*

By J. R. KINGHORN, C.M.Z.S., Sydney.

FROM time to time many interesting notes and specimens pass through my hands and the following selection should prove of value to workers in ornithology.

WHITE-TAILED TROPIC-BIRD (*Phæton lepturus*).—The late A. J. North noted (*Records Australian Museum,* iii, 4, 1898, p. 89) that during the heavy storm of February, 1898, a juvenile specimen of this species was washed ashore in Botany Bay, this being the first record of the species on the Australian coast. Though the immature bird had never been described, North failed to give an adequate description, so I take the opportunity to do so here.—General colour above white barred with black, each feather having a black bar near the tip, the tip itself being white. The feathers of the head have large dark centres; the forehead is white, and there is a distinct dark patch in front of and behind the eye. Mantle whiter than the rest of the upper surface, the mottled feathers of the head forming a fairly distinct cap, a few feathers, each with a dark bar, extend round the sides of the neck. The majority of the mottled feathers have black shafts. The back, rump, and upper tail coverts are barred like the mantle. The long feathers of the flanks are mostly brown on the terminal half, as also are some of the under tail-coverts. The three outer primaries have a black band which embraces the whole of the outer web, shaft, and portion of the inner web, to within a half-inch of the tip. In the fourth primary the black marking extends from the shaft outwards, the edge of the outer and the whole of the inner web being white. The remaining quills have black shafts only. The tail feathers have black shafts at the base and black spots at the tip. Total length 378 mm., wing from shoulder 260 mm.; tail 134 mm.; tarsus 20 mm.; middle toe 35 mm.; culmen 44 mm.; bill from gape 58 mm.; depth of bill at nostril 14 mm.

Mrs. E. Foster, who visited Lord Howe Island in March, 1926, observed a sulphur-yellow Boatswain-Bird flying with a flock of the red-tailed species between the mainland and the Admiralty Islets. It was somewhat smaller than the others and appeared to have a more graceful flight, and was quite unknown to the inhabitants of the island. At first I thought that Mrs. Foster must have seen a xanthic variety of *P. rubricauda,* but, as xanthochroism is practically unknown among sea-birds I was very doubtful as to its identity. A few days ago I was lucky enough to find, in the old reference collection, an immature specimen registered under *P.*

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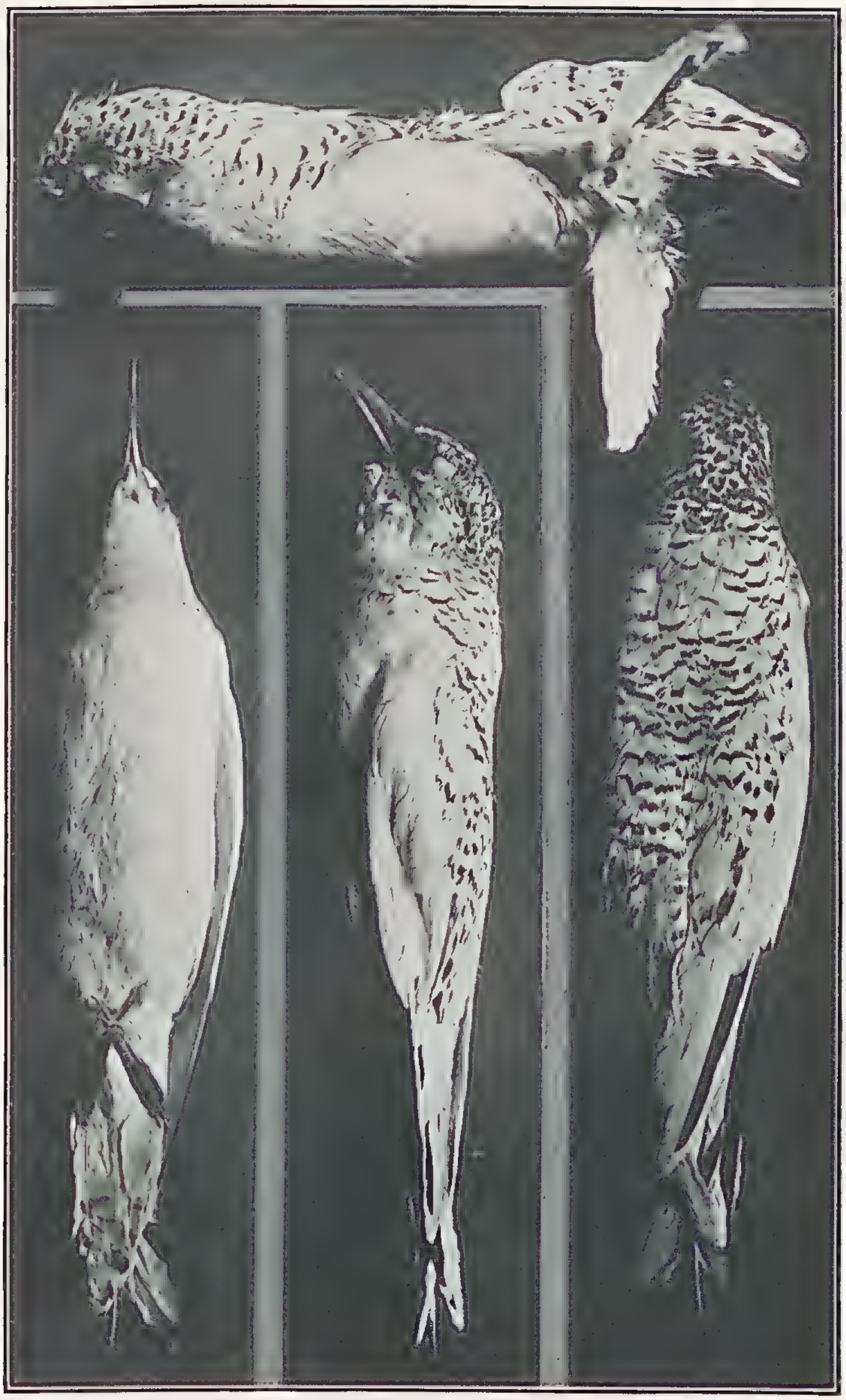
* By permission of the Trustees of the Australian Museum.



WHITE-TAILED TROPIC BIRD (*Phaëthon leptūrus*).
Upper: Specimen from Lord Howe Island, January, 1890.
Lower: Ventral, lateral and dorsal view of specimen from Botany Bay, February, 1898.

Photo. by G. C. Clutton.

VICTOR

rubricauda, collected on Lord Howe Island by Mr. W. Love in June, 1890. The specimen is not complete, the tail part being missing, and it was written off in the register as "thrown out, worthless"; but fortunately it got away into the corner of a drawer and was saved. It is undoubtedly the young of *P. lepturus,* and agrees in detail with the Botany Bay specimen. I am now inclined to believe that the bird seen by Mrs. Foster was the adult *P. lepturus.*

YELLOW-NOSED ALBATROSS (*Diomedea chlororhyncha*).—Several specimens, probably identical with the form named by Mathews *Diomedea bassi,* visited Sydney Harbour during the first three weeks of August, 1927. They were seen by Mr. T. Iredale from the deck of a Manly steamer on several occasions, and resting on the water in Athol Bight by Messrs. H. S. Grant and J. H. Wright, who went out in a rowing boat in an endeavour to secure a specimen for the Museum. The birds were approached to within a distance of twenty feet, but none was caught.

LEFT BY THE TIDE.—From time to time, especially after heavy weather, numbers of very interesting sea birds are washed up on the ocean beaches of New South Wales. During the storms which occurred on the coast between the 9th and 22nd of November, 1924, Mr. H. S. Grant found the following species washed up on the beach at Shell Harbour: Gannet (*Sula serrata*), 1; Short-tailed Shearwater (*Puffinus tenuirostris*), 4; Fairy Prion (*Pachyptila turtur*), 2; White-faced Storm-Petrel (*Pelagodroma marina*), 1; Sooty Shearwater (*Puffinus griseus*), 1. This is identical with the form which Mathews named *Neonectris griseus nutcheri,* from the coast of New South Wales, and the specimen found by Mr. Grant was the second record. The same year and month, Mr. T. Iredale found one *Puffinus griseus* and three *Puffinus tenuirostris* washed up on a beach near Manly. The former species evidently visits the eastern Australian coast regularly during the month of November, as Iredale has since collected two more dead specimens near Manly, one on the 9th of November, 1926, and the other on the 22nd of November, 1927.

BIRDS AND A LIGHTHOUSE.—Mr. C. F. Woodhead, who until recently was stationed at Booby Island Light, Torres Straits, was in a good position to observe the migration of birds to and from New Guinea, and he sent to the Museum several interesting notes, and a small collection of birds which had hit the lighthouse. He informs me that the light attracts the birds, and when they come with the wind and rain are on the wing all night. During rain they hit the light so hard they break their necks and leave the skull bare, and are of no use for skins unless they happen to be Pigeons or Ducks. During the fine weather they have a better chance and see the danger in time to check their speed and hit feet foremost, landing on the window sill and manifesting no intention of leaving. Most of the land birds are observed during the south-east squalls, and Mr. Woodhead suggests that they must come from the Jardine Swamps and then across a thirty mile stretch of sea from the mainland. The following list represents those specimens sent to the Museum from Booby Island Light, and the date of capture: Little Quail (*Turnix velox*), 22.6.25; Leaden Flycatcher (*Myiagra rubecula*), 3.4.25; Banded Land-Rail (*Hypotænidia philippensis*), 22.6.25; Black-faced Cuckoo-Shrike (*Coracina novæ-hollandiæ*), 22.6.25; Shining Starling (*Aplonis metallica*), two young specimens, 3.4.25; Golden Bronze-Cuckoo (*Lamprococcyx plagosus*), 3.4.25; Dollar-Bird (*Eurystomus orientalis*), 3.3.25; Sacred Kingfisher (*Halcyon sanctus*), 14.4.25; Koel (*Eudynamis orientalis*), 13.3.25. The Koel arrives with the north-west storms, but usually not as early as this specimen, which arrived without its mate. Six Koels in the season may reach the light. Mr. Woodhead remarks that they feed on wild fruit.

KANGAROO ISLAND EMU (*Dromaius diemenianus*, extinct).—Mr. A. S. Le Souef presented a feather from the breast of the type specimen, which is in the Paris Museum. This is probably the only portion of the species in an Australian collection. It is a more delicate type of feather than that of the living Emu, and is softer and more elongate. From its softness one would assume that the type was a comparatively young bird.

HYBRID ZEBRA FINCH x DIAMOND FIRETAIL (*Tæniopygia castanotis* x *Zonæginthus guttatus*).—This interesting specimen was recently added to the collections through the kindness of Messrs. Crawford and Fleming. The back, mantle and head are coloured like those of the Diamond Firetail. The bill is scarlet and the feathers of the gape are whitish, washed with pink. The throat is white and there is a broad bar on the chest as in the Firetail, but the feathers of the bar, instead of being black, are finely barred with grey and pink. The tail feathers, both in size and shape, are those of the Zebra Finch, as also are the upper tail-coverts, but they are pink instead of the usual white, and the black bars typical of that bird are replaced by reddish-chestnut. The white spots on the sides and flanks are intermediate in size between those of both birds, and they are on a pale chestnut ground colour. The legs and feet are yellow, washed with pink. There is no trace of the chestnut ear, which is so typical of the Zebra Finch.

THE FROGMOUTHS.—I have had occasion to examine for a country resident the several species belonging to the genus *Podargus*, and a summary of my examination is here given: *Podargus papuensis*.—In colour and markings this species resembles *P. plumiferus*, but is a larger bird, has a tuft at the base of the bill but no plume. The bill and feet are large and stout. The under-surface is marbled as in *P. plumiferous,* but it is a much lighter shade and shows considerably more white. The upper parts are also very light, while those of *P. plumiferus* are dark reddish-brown. *Podargus ocellatus.*—This species is much more closely allied to *P. plumiferus* than is *P. papuensis,* the two former often being mistaken for each other. Some workers hold that *P. plumiferus* is only a variety of *P. ocellatus.* Both birds are much smaller than *P. papuensis* and both bear plume feathers as well as a frontal tuft, but *P. ocellata* is the smallest of the three and is distributed from New Guinea to Cape York, while *P. plumiferus,* the medium-sized bird, is restricted to south-eastern Queensland and north-eastern New South Wales.

Podargus strigoides and synonyms. There appears to be some diversity of opinion regarding the placing (by the Check-list Committee), of *P. brachypterus* and *P. phalænoides* in the synonymy of this species.

I have closely examined a number of skins, and agree with Mr. A. J. Campbell (*Emu, Vol.* xxi, p. 191) that *P. phalænoides* should be regarded as a distinct species for (as Campbell quotes from Gould), it "may be readily distinguished from every other Australian species of *Podargus* by its smaller size and by the beautiful, delicate and moth-like painting of its plumage, etc." This bird appears to be restricted to North Australia, especially round Port Essington, where the three specimens in the Museum were collected. It is a small, delicate bird, and is much more like *P. plumiferus* (except for a very much shorter tail), than *P. strigoides.* On seeing the birds together it is difficult to understand how anyone could regard them as synonymous. In regard to *P. brachypterus,* which appears to be a very much darker bird than any *P. strigoides,* it would be advisable that further research be made and larger series examined before it is definitely placed as a dark form of *P. strigoides.*

TURQUOISE PARROT (*Neophema pulchella*).—In the list of birds collected by Messrs. Troughton and Wright (*Emu,* xxvii, 1927, pp. 81-92), it was mentioned that this species was met with in the Immarna district. Objections* have been raised to the effect that *N. pulchella* does not occur anywhere near the district mentioned, but I am relying on the word of Mr. Wright, who informs me that two specimens were brought to him by residents of the district but they were so badly knocked about he could not make a skin, and had to throw them away.

MASKED OWL (*Tyto novæ-hollandiæ*).—A mistake has been made in regard to the identification of the Owl collected by

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* A. J. Campbell, *Emu, Vol.* xxvii, 1928, p. 137.

Messrs. Troughton and Wright from the underground caves or "blowholes" at Ooldea. This specimen, which was recorded as *Tyto alba,* has since been determined as *T. novæ-hollandiæ.*

The Genus STREPERA.—In the same paper, Mr. Fletcher and I noted that Troughton and Wright collected *Strepera versicolor* from various localities in South and South-west Australia. Following this I received a letter from Mr. J. Sutton doubting the correctness of the identification of the species and suggesting that the birds collected belonged to a species recorded in the Checklist as *Strepera intermedia.* Having due regard for the notes in the *South Australian Ornithologist,* viii, 2, 1925, pp. 41 and 49, Fletcher and I examined the whole of the *Streperas* in the Australian Museum, totalling in all seventy-four birds. Of this number thirty-two belonged to *S. graculina,* and need not be considered here, while the remaining forty-two specimens included three *S. fuliginosa,* six *S. arguta,* two *S. melanoptera,* and thirty-one which we regard as *S. versicolor* and varieties.

S. fuliginosa.—This species is very distinct; it is a small and dark form from Tasmania and King Island, Bass Strait, though North recorded it as Eastern Australian. In the Museum Collection is a typical specimen from Central Queensland, which was shot from the nest by H. G. Barnard in 1892. This record, which there is no reason to doubt, is most surprising and interesting, especially as there are no others in the collection from any intermediate locality.

Strepera arguta.—This is another Tasmanian bird, and is the largest and most powerful of the group, and is very distinct from its allies. It has a long wing and tail, and strong claws and bill. Six specimens were examined and their tails varied in length from nine and one-quarter to ten and one-half inches, while the wing, from the shoulder to the tip, varied from ten and one-half to eleven inches. *S. arguta* is a very black bird, and the wing-spot is white and most conspicuous. Five of the six specimens examined are from Tasmania while the sixth is labelled "King George's Sound, West Australia, Old Collection." The fact that it belongs to the "Old Collection" and has no other data makes me doubt the authenticity of the locality. There is of course no doubt as to its identity.

Strepera melanoptera.—There are two typical specimens of this species in the Museum collection, one from Flinders Range, South Australia, and the other from South Australia. They are both very brown all over, with only a faint suggestion of a marking on the under-side of the wing.

Strepera versicolor and varieties. Thirty-one specimens were examined, of which eighteen are from New South Wales.

The eastern birds are mostly light slate-grey of various shades, some showing tinges of brown on the back, and the majority have some degree of brown on the breast. I suggest that the brown tinge is, more often than not, due to the presence of old and worn feathers. One bird from Manilla, New South Wales, is remarkable for its very dark, almost black, colour, somewhat similar to that of *S. arguta.* The specimen collected at Eyre's Peninsular by Troughton and Wright is comparable to this specimen, but has not the same amount of brown showing through the black. The bird from Immarna is intermediate between these two and the lighter ones from New South Wales, but it is certainly not nearly so brown as our specimens of *S. melanoptera,* which agree perfectly with the original description.

The specimens from South-west Australia are distinctly *S. versicolor,* though darker than the New South Wales birds, and they are almost identical with the specimen from Immarna. In regard to the former, two are from Albany and one from near Cranbrook, the former having more brown on the upper surface than the latter. I would consider them younger birds than those from Cranbrook.

In regard to the statements in the *South Australian Ornithologist,* I agree that Mathews was not justified in separating some birds into a genus which he called *Neostrepera,* but I also think that no one with a series of birds would be justified in separating *S. intermedia* from *S. versicolor* merely because of a variation in the colour shades, I do not think that it should be regarded even as a subspecies, as the degree of colour shade throughout a series of *S. versicolor* is too great to allow any separation being made. Colour is very distinct from shade, though many workers overlook this important fact. Throughout the series examined the markings remain constant, while measurements and shade are variable. It would appear that in the east the general colour of *S. versicolor* is light greyish-brown, or slate, while in the south-west (*S. plumbea*), it has assumed a more uniform grey with less brown in it. In the intermediate area, of South Australia, the species varies more in colour and shading, and there is evidently no constant or typical shade from that area at all. My conclusions are that *Strepera intermedia* is only a variety of *S. versicolor.*

GOLDEN WHISTLER (*Pachycephala pectoralis*).—In referring to this species I am doing so to make a correction in regard to the identification of the specimen collected at Deep Creek, Kangaroo Island. This was originally identified as *P. rufogularis,* but when the mistake was discovered it was overlooked in the list through the MS. being lost for some months. The specimen is immature, and identical with those named

P. occidentalis by Ramsay, this species now being correctly placed in the synonymy of *P. pectoralis.* The bird was sent to the authorities at the South Australian Museum for comparison with a specimen of *P. rufogularis* at that institution, and my later identification has been confirmed.

PARDALOTES.—Mr. Sutton called attention to the fact that Fletcher and I listed the Striated Pardalote (*P. striatus*), from Mount Lyndhurst, whereas he and others contend that the birds from that locality should be recorded as the Red-tipped Pardalote (*P. ornatus*). We have since examined a very large series of Pardalotes from which we drew the following conclusions: The Yellow-tipped Pardalote (*P. affinis*), appears to be a distinct species. The lemon-yellow tips to the primary coverts is constant in shade, while the only white on the wing is the thin edge of the outer web of the second primary; neither of these characters varies in the slightest degree over a series of eighteen specimens. The red tip of *P. ornatus,* the orange tip of *P. striatus,* and the grey of the back and mantle, as well as the size of the white patch on the wing, which North described as characteristic of *P. assimilis,* all vary to a considerable degree. The tips to the primaries range from a pale orange to a clear red, almost crimson, while the extent of the white patch on the wing varies from a single stripe to a comparatively large patch, and no separation can be made into groups. We examined about sixty specimens of these three species, and agree with the compilers of the Checklist that *P. assimilis* is synonymous with *P. ornatus*; but also we feel that North was right when he placed *P. ornatus* in the synonymy of *P. striatus.* The specimen collected by Mr. Troughton is the red-tipped colour variety, but we regard it as *Pardalotus striatus.*

Stray Feathers.

The Queensland Black-and-White Petrel.—On June 6th 1770, during Captain Cook's celebrated voyage along the Australian voast, a small Shearwater was captured in latitude 19° 0′ S., longitude 213° W. (of London), a locality off Townsville, Queensland. Dr. Solander prepared a Latin description of it and gave to it the manuscript name of *Nectris nugax.* In his *Birds of Australia,* Vol. II, p. 72, 1912, Mathews included this bird with the vernacular name given at the head of this article and the scientific name *Puffinus lherminieri nugax.*

In a recent paper "On Certain Forms of *Puffinus assimilis* and its Allies" (*American Museum Novitates,* No. 276, Sept. 8, 1927), Dr. R. C. Murphy records that a bird agreeing with

Solander's description was obtained at Melapav (= Meralav or Star Peak) Islet in the Banks Group of the New Hebrides on Sept. 14, 1926, by Mr. R. H. Beck during the Whitney South Sea Expedition. The specimen is a female with enlarged ovaries, so presumably this islet is the breeding-place of this long-lost bird.

After examination of three hundred specimens from about thirty localities in the Atlantic, Indian and Pacific Oceans, Dr. Murphy agrees with Mr. Mathews that the small Shearwaters of this group are divisible into two species, *Puffinus assimilis* and *P. lherminieri,* each with numerous subspecies. On the other hand, Mr. Loomis and Dr. Hartert, who have also discussed these birds recently, regard them all as forms of one species, for which the former used the name *Puffinus obscurus* and the latter *P. assimilis.* In my book, *Birds of the Ocean,* now in the press, I have followed Dr. Hartert's view, as the most recent then published, but perusal of Dr. Murphy's paper has satisfied me that the two species can be satisfactorily diagnosed.

In the Checklist (Second Edition), 1926, there is no reference to *Puffinus lherminieri nugax.* When a third edition is contemplated Audubon's Shearwater, as *P. lherminieri* is generally known in the vernacular, should be included as a New Hebrides bird which has once occurred on the Queensland coast. But perhaps before that time further specimens may come to light and it may prove to be a regular visitor to north Queensland seas, or even to breed on some of the islands of the Barrier Reef.—W. B. ALEXANDER, Croydon, England (Nov. 16, 1927).

* * *

Wedge-tailed Eagle Attacks Child.—About eighteen months ago or thereabouts, there appeared in a leading Perth newspaper a rather sensational paragraph describing an attack made by a large Eagle on an infant sleeping in a cradle under the verandah of a settler's cottage. The incident occurred in forest country near Manjimup, which is situated about mid-way between Perth and the South Coast. Even to a casual reader the account required confirmation, for it was difficult to see how an Eagle flying around could be aware of the child under the shelter of the verandah. Mr. D. L. Serventy and I both tried to clear the matter up, but we both failed to obtain first-hand evidence of what actually occurred. We did, however, secure particulars that throw rather a different light on the story.

It appears that the owner of the cottage kept a flock of tame Pigeons and these may have attracted the Eagle to the vicinity, for it had been seen for some time in the neighbourhood. The climax came when one day, as a little girl was crossing the adjacent clearing, the Eagle made a swoop after her in a menacing manner, following her right up to the verandah as she ran screaming into the house. The verandah was an enclosed one, but fitted with a wide unglazed window, open during the day time, but closed at night by a big flap-shutter. On the sill of this window the Eagle perched. Incidentally the infant happened to be asleep under the verandah at the time, but as far as we could learn the Eagle made no attack upon it. Hearing the little girl's screams, a man working nearby ran over to see what was the matter. Seeing the Eagle on the window-sill he let fall the flap-shutter, closed the verandah door, and made it prisoner. With the aid of a chaff-bag, in which the Eagle entangled its claws, he finally captured it. Of course there was a scuffle, but neither the infant nor the little girl received any injury. The Eagle was sent up to Perth and I saw it a few days later. As far as plumage goes it was an adult bird, and judging from its size a male. The wing expanse was said to be seven feet three, but I estimated that the wings would have to be stretched to their extreme limit to attain this width.

I have written the foregoing account which is interesting from what follows: Mr. A. Lawrence, of Young's Siding, near Albany, and whom I know personally, writing under the date Dec. 2nd last, remarks—"I had noticed for a little time a pair of Eagles hanging about the paper-bark flats at the bottom of the home paddock. I did not interfere with them in any way as I suspected they were building in the vicinity. Subsequently I saw only the female bird and concluded the male had been shot by some gun fiend. On a recent Sunday a little boy, aged six, was playing down on the flats about one hundred and twenty yards from the house, as he was often accustomed to do. Suddenly we were alarmed by his terrible screams; my wife and daughter rushed out to see what was wrong and I followed a minute later. There is no doubt about what we saw—the Eagle was attacking the child. Running to his assistance and our loud shouts drove the bird away, but so deliberate was the bird that it only retired to the top of a broken gum, from which it watched the mother and daughter soothing the terrified child. I hurried back to the house for a gun, but when I got back the Eagle had cleared off. The child luckily escaped any physical injury, but the sight of any large bird of prey passing over still sends him running into the house in alarm."

Mr. Lawrence assures me that the foregoing is a plain, unembellished account of what took place and I have no hesitation in accepting his word. He takes an intelligent interest in nature and as in my case—both of us being Englishmen—the large birds of prey are always an attraction from their great rarity in our native country. In answer to a few questions I put to him, he further writes that the little boy was wearing a dark blue jersey inconspicuously piped with red, he wore no shoes or stockings and no cap, but he has naturally a mop of bright curly hair. A careful examination of the ground nearby revealed no animal remains or anything likely to attract an Eagle. The boy is a bright little fellow and he declares the Eagle swooped down upon him from the air as he was returning to the house. Is it possible that the mop of light curly hair may have attracted the Eagle to the boy?

I know the Young's Siding district intimately. There are always Eagles about, especially Sea-Eagles, but Wedge-tailed Eagles also are frequent. I think now that the district is so much settled that pairs which formerly nested in the big karri trees have retired to the line of coastal cliffs between Knapp's Head and West Cape Howe. I have always found Eagles very wary. I have stood in their nests and handled their young when quite alone, but beyond flying round at a safe distance and uttering yelping cries, they have made no hostile effort in protection of their young. I regard an authentic case of an Eagle attacking a well-grown active child as of especial interest.—F. Lawson Whitlock, West Leederville, Western Australia (Jan. 6, 1928).

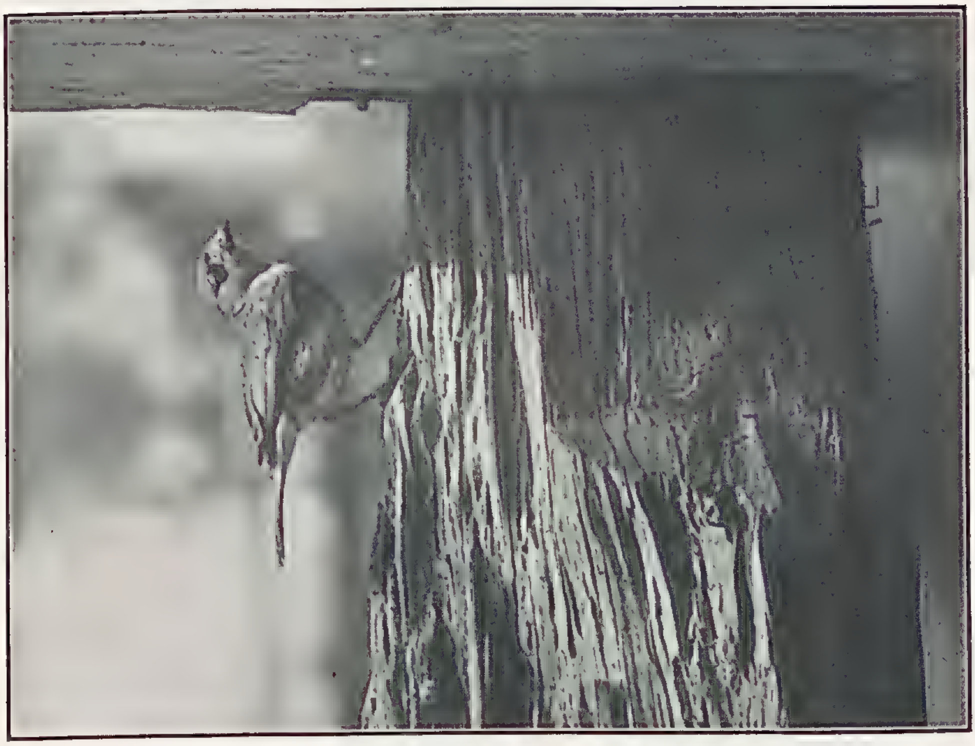
* * *

A Supposed Combination Clutch among Cockatoos.—An acquaintance of mine, Mr. J. Grogan, of Bassendean, a keen local aviculturist, told me of an interesting case of a supposed combination clutch among Cockatoos which came under his notice recently. On October 21, 1927, he was at Mingenew on the Irwin River, and took some young Cockatoos out of a nest in a salmon gum. Two of the birds, which were all of the same age and in the pin-feather stage, were Major Mitchells (*Kakatoë leadbeateri*), and the third was a Galah (*Kakatoë roseicapilla*). Mr. Grogan considered that the Galah was too aggressive a bird to contract a union with the meeker Major Mitchell, and came to the conclusion that the birds were not hybrids, but the result of a combination clutch. He surmised that the nest was originally occupied by a Galah which laid one egg and then met with a misadventure. A pair of Major Mitchells then immediately entered into possession, laid two eggs and hatched them with the original one. Mr. Grogan noted that the head of the young Galah was of a paler pink than in normal birds. Adult Major Mitchells had been seen in the vicinity of the nest for the previous six weeks. Dr. W. Macgillivray records in *The Emu* (XXII, p. 325), instances of a natural cross between a Galah and a Major Mitchell, and between a Little Corella (*Kakatoë sanguinea*), and a Galah.—D. L. Serventy, Subiaco, W.A. (November 19, 1927).

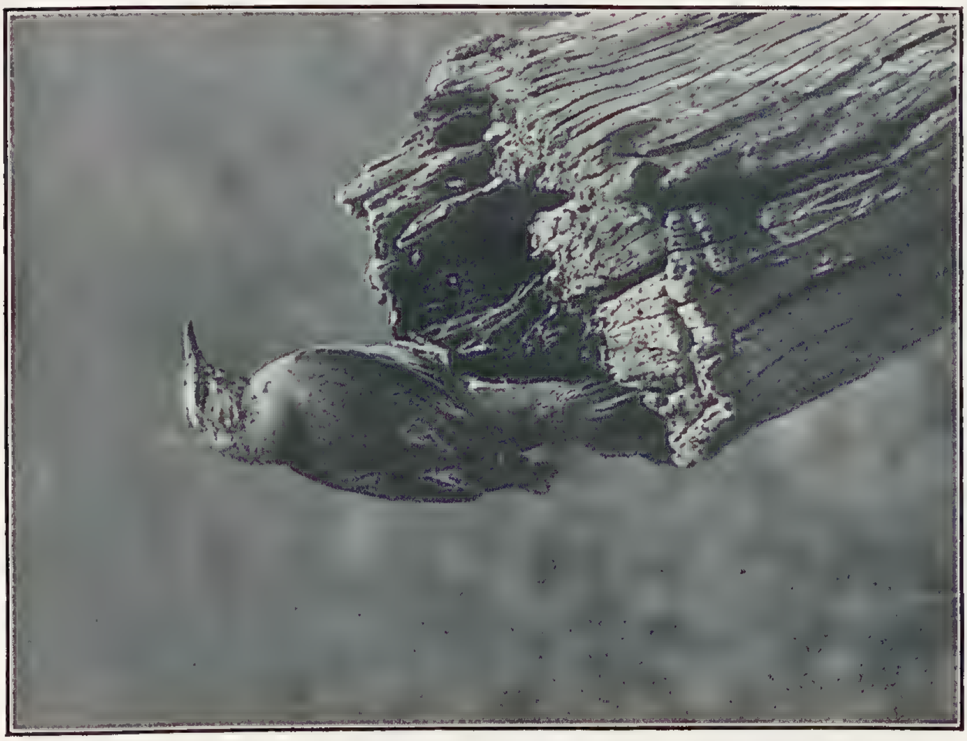
Jacky Winter's Low Nesting.—I have been greatly interested in the notes on the above subject which have recently (1st April, 1927, Vol. XXVI, p. 281, and 1st January, 1928, Vol XXVII, p. 216 and Plate 30), appeared in *The Emu.* My experience of *Micrœca fascinans* is not nearly as long as that of either of the two observers who have contributed notes; but in respect to the north-western Mallee country of Victoria it is not negligible. Had I been asked to state the rule and the exception, I should have placed them in the reverse order. Until on October 4th, 1926, on a visit to the Avoca district in central Victoria, I found a Jacky Winter's nest ten feet from the ground, I was not aware that it ever nested so high. Looking through my notes for that year I find that at Kow Plains on September 18 I saw three nests of this bird. One was ready for the eggs, one contained two eggs and was placed exactly as the one in the photograph of Mr. Wolstenholme, the dry tree in this case being a fallen Murray cypress pine (*Callitris robusta*), while the third contained two baby birds apparently very recently hatched. All three of the nests were so low that one could look into them without climbing. It might be argued that so small a nest placed higher might readily be missed. Belcher, however (*Birds of Geelong,* p. 222), mentions a habit, the knowledge of which is helpful to the observer: "In nearly every case, if the birds have a nest with eggs and are watched, one of them will eventually fly directly to it—a habit which is rarely noted in other birds." For this reason the nest of *Micrœca fascinans,* although one of the tiniest, is also as a rule one of the easiest to find.—WALTER WALTERS, The Rectory, Scottsdale, Tasmania (Jan. 30, 1928).

* * *

A Fruitful Bird Day.—On November 6th, 1927, accompanied by Messrs. H. Wolstenholme and M. S. Sharland, I spent a very pleasant day near St. Mary's, an area of partly cleared forest country about 30 miles west of Sydney. Fourteen species of birds were found nesting. On arrival we visited the "melaleuca patch" described in *The Emu* of July, 1923, in which five species of black-and-white birds were nesting. It now contained a sixth black-and-white bird—on the topmost fork of one of the trees about 20 feet from the ground was the nest with two young of the Black-backed Magpie (*Gymnorhina tibicen*). The only other occupant of the patch was a Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*), with eggs. Several other nests of this bird were also found. Close by , in the corner post of a small stockyard, a Whiteface (*Aphelocephala leucopsis*), had its nest containing young birds. On a visit five years ago, when the accompanying photo was taken, the Whiteface nested in the



WHITEFACE AT NESTING HOLLOW IN FENCE-POST.



BROWN TREE-CREEPER AT NESTING HOLLOW IN STUMP.

Photos. by N. Chaffer.

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post on the opposite corner. This species seems to be on the increase about here, and is becoming fairly plentiful. It has not, I believe, been previously recorded east of the Blue Mountains in this region. The bird was an easy subject to photograph, being quite tame at the nest. Another pair of Whitefaces were noted building behind the loose bark of a dead tree.

Mr. Wolstenholme found the nest of a Brown Tree-Creeper (*Climacteris picumnus*), in a stump about three feet high. The entry to the nest was made from the top of the stump, and the nest, containing three eggs, was placed about twelve inches down. The bird was photographed on a subsequent visit and proved rather shy. She approached very cautiously, flying about in the neighbourhood of the nest from stump to stump repeatedly before facing the camera. She would soar to the foot of a stump and, climbing to the top, would remain motionless watching me for minutes at a stretch. Food was obtained as often from the ground as from the trunks of the trees.

Two nests of the beautiful Red-capped Robin (*Petroica goodenovii*), each with eggs, were found in isolated melaleuca trees. Other nests found were several Magpie-Larks (*Grallina cyanoleuca*), a Brown Flycatcher (*Micrœca fascinans*), two Wagtails (*Rhipidura leucophrys*), a Blue Wren (*Malurus cyaneus*), a Little Thornbill (*Acanthiza nana*), a Red-tipped Diamond-Bird (*Pardalotus ornatus*), a Grey Thrush (*Collurcincla harmonica*), and several Diamond Firetails (*Zonæginthus guttatus*). Fairy Martins (*Hylochelidon ariel*), nested in numbers under the culverts.

On a subsequent visit I found that tragic happenings had occurred. The two Red-capped Robins' nests had wholly disappeared; one Wagtail's nest hung in shreds; and the Thrush's nest was deserted. Two large goannas seen along the creekside probably accounted for the disappearance of the nests and eggs.

An interesting bird met with was the Double-banded Finch (*Steganopleura bichenovii*), a small flock of which was seen. I did not think it ranged so far south.—N. CHAFFER, Chatswood, N.S.W. (Dec. 20, 1928).

Correspondence.

AMYTORNIS STRIATUS OR *A. WHITEI?*

(To the Editor.)

Sir.—There is one item of special interest to me in Messrs. Kinghorn and Fletcher's account of "Birds Collected in South and South-western Australia" (*The Emu*, Vol. XXVII (p. 81 *et seq.*). I refer to the Striated Field-Wren (*Amytornis striatus*), p. 89. The note reads: "A male from Mississippi Bay, eight miles from Esperance, on December 5, 1921. Very few of this species were seen in the district."

The new Checklist (p. 84) gives interior of New South Wales, Victoria, and South Australia for the typical form of this species and two interior localities for two recognized sub-species, Western Australia not being included in the habitat at all. But *Amytornis whitei*, which is recognized as a distinct species, and therefore the Western representative of *A. striatus*, is only listed as being found in the north-west and interior of our State. The most southern locality where it had been previously taken was the East Murchison, where I collected a number of specimens nearly twenty years ago.

An *Amytornis* occurs around the salt lakes of the Coolgardie Goldfield, but it is a form of *A. textilis*. It probably occurs also around Lake Lefroy still further south. I have collected to some extent around Lakes Cowan and Dundas, one hundred and thirty miles north of Esperance, but found no *Amytornis*; but they are so large in area that one may readily be there. I would like to ask if the Esperance specimen was like the eastern *A. striatus* or the western *A. whitei*.

Yours, etc.,
F. Lawson Whitlock.

West Leederville,
Western Australia.
January 6, 1928.

DISTRIBUTION OF *NEOPHEMA*.

(To the Editor.)

Sir.—Regarding some editorial comments on observations of mine on the range of certain small Parrots (*Emu, ante*, p. 137), I may be permitted to remark:

1. It is stated that *N. splendida* was seen in a coastal locality of New South Wales, and that a specimen was procured last year not many miles due west of the locality. Has the

Editor seen this specimen? If not, I fear he is no better off than before. Want of this evidence makes the record doubtful. Occasionaly western and interior species have approached eastern coastal localities. For instances, the Painted Finch (*Emblema picta*), Crimson Chat (*Epthianura tricolor*), and Striped Honeyeater (*Plectorhyncha lanceolata*), have visited eastern New South Wales. Specimens were secured. In the case of so rare a Parrot as *Neophema splendida*, it is necessary that the important record be doubly assured before being accepted as a certainty.

2. It is alleged that two males of *N. pulchella* were obtained at Ooldea, Nullarbor Plain, but were not preserved. About the same time and locality a female was procured which on comparison with authentic specimens in the Australian Museum, Sydney, and National Museum, Melbourne, is undoubtedly *N. splendida*. I have seen the specimen. It is in the former institution, and registered "026,590; Oct., 1921, 407 miles, East-West Railway" (*i.e.*, distant from Port Augusta).

Yours, etc.,
A. J. Campbell.

Box Hill, Victoria.
February 13, 1928.

[In reply to Mr. Campbell's query, surely it is not necessary for the Editor of *The Emu* to see a skin before a record can be accepted! In the case cited (the shooting of a male Scarlet-chested Parrot in eastern N.S.W.), the record came through Mr. N. W. Cayley (N.S.W. Secretary, R.A.O.U.), the specimen having been identified when set against one of his drawings. In such a case, as also with Miss Irby's record, there seems little possibility of error, for the male *Neophema splendida* is a very distinctive bird. As regards *N. pulchella* on the Nullarbor Plain, Mr. Campbell's query was certainly justified. The editorial comment was merely concerned with stating the case tendered by Mr. J. H. Wright; *proof* of the record rests with Mr. Wright himself.—Editor.]

THE STARLING MENACE.

(To the Editor.)

Sir.—The following letter from Mr. H. Piggott, of Tongala, Victoria, dated 21st October, 1927, was read at a recent meeting of the Council of the R.A.O.U.:

> Doubtless you are aware of the fact that one of your protégés, the Starling, does considerable damage to fruit crops of all descriptions; in fact, so serious is the damage that we may have to give up such crops as sultanas, prunes and grapes of all kinds. During February, March and April these birds are here literally in millions. To keep them off the crops is costly and they cannot be left from sunrise until sunset. In fact, the strain is so great that this pest threatens to beat us. In advocating measures for its control we are met with the argument that it is also a benefit; it is pointed out

to us that in Gippsland it is of considerable benefit. To meet this argument effectively it is necessary for us to know that the feeding range of this bird during the above months ranges from Gippsland to Echuca. Could you give us the required information? In other words, if we destroy this bird here, do we affect Gippsland? Any information as to its range, habits or methods of control would be greatly appreciated.

When the foregoing letter was read at the R.A.O.U. Council Meeting I was so impressed with its sincerity and importance that I asked the honorary secretary to let me have it so that I might draft a suitable reply. But I find, beyond a few stray paragraphs and an article by Mr. W. W. Froggatt on the Starling, little to offer the writer of the letter in the shape of facts and observations. All who read the letter must be impressed by its underlying seriousness, and by the terrible menace the Starling has become to the orchardists and viticulturists. It seems to me that the time has come for the Government of the country to give a satisfactory reply to such an inquiry. Outside of the efforts of individual members of the R.A.O.U., little or nothing has been done with regard to the organized study of the relations of birds to agriculture in Australia.

In the Council for Scientific and Industrial Research we have the means of undertaking such a study, and I think that if the accompanying letter, backed by the knowledge and opinions of the members of the R.A.O.U., were brought under the notice of the Council, it is possible that a sum of money would be forthcoming sufficient to make a survey of the economic relation of the Starling to the fruit industry of southern Australia. In this connection I would suggest that the members of the R.A.O.U. forward any observations pertaining to the life history and the habits of the Starling for publication in *The Emu*. Even if one whole issue were devoted to this object, showing the necessity for such an economic survey, then the effort would have been worth while.

Yours, etc.,
BROOKE NICHOLLS.

Jolimont, Victoria.
January 16, 1928.

DECEPTION AMONG BIRDS.

(TO THE EDITOR.)

SIR.—It was with considerable interest that I read Dr. B. Anderson's letter, under the heading "Deception among Birds," and the Editor's comment on the same in *The Emu* for October, 1927. While not claiming to have a very extensive knowledge of bird-lore, I must say that it has always seemed to me that this fluttering on the ground, etc., was a most deliberate attempt on the bird's part to feign injury and so lure the danger away from the nest or young.

Many birds, notably the Robins, appear to practise it to a greater or less degree, and a pair of Crimson Chats (*Epthianura tricolor*), that I once photographed—incidentally, the only specimens of this genus I have ever seen in this locality—did so with great assiduity all the time I was in the vicinity. But they never gave me the impression that they were having "fits"; if they were, they surely had a bad time of it, for they each threw several hundred "fits."

However, my purpose in writing this is not to express opinions, but to place on record an observation of mine, which to my mind at least would seem to go towards disproving Mr. Dewar's "fit theory."

It was while riding one day along a creek bank that I there came upon a pair of Wood-Ducks—Maned Geese (*Chenonetta jubata*)—with a clutch of half-grown young. The ground was fairly bare of grass just there and the young made no attempt to crouch and hide, but the whole party ran on ahead of me—the parent birds not making any effort to feign injury (or have "fits"), as they will often do—when one of the old birds suddenly separated from the others and made off in a most business-like manner to one side. Wondering what it was going to do, I pulled up and watched it. Crouching low to the ground, apparently in an endeavour to escape observation, it made a wide detour until almost directly behind me, and then coming directly towards me, it showed itself boldly and commenced to flutter about, flapping and dragging its wings in the usual manner; making off, still fluttering, in the opposite direction, of course, to that taken by the young when I rode towards it.

Now, it seems to me that this must point to the bird having been actuated by a deliberate, intelligent purpose in this particular case, for it did not commence the fluttering at once when first surprised, but after running 60 to 70 yards to enable it to get to a point from where it could lead me away from the young.

It would be interesting to learn if other observers have had similar experiences with these or other birds.

Yours, etc.,

OTHO WEBB.

Darr Creek, Jandowae,
Queensland.
January 6, 1928.

THE PRESIDENTIAL ADDRESS.

(To the Editor.)

Sir.—I cannot at all agree with Mr. Ashby upon the subject of his Presidential Address at the Annual Congress held during October, 1927; for I should be very strongly against training youths at school in the art of bird-collecting and taxidermy.

To commence with, there is no one can say what a boy at school, with very few exceptions, will eventually develop into mentally. All male youngsters are collectors; they are hunters by nature—it is one of those features that, inherited from our savage forefathers, are so often discernible in youth but lost in maturity. After leaving school and going out into the world, how very few boys retain this old instinct; they drop natural history and turn their interests to cricket or tennis or art or one of the professions, and all that will remain of the trained youths will be a few taxidermists. You cannot make ornithologists as you would make motor mechanics. Unless the boy has the germ, the ornithological germ, in his blood the time and specimens given to his training will be wasted. Not only that, the teaching will do endless harm, for the trained boy, finding that well-prepared skins of scarce birds have a marketable value, will collect them solely for the money that is in them, and it follows that our rare species must suffer. If a boy has the ornithological germ in him he will come to the fore without this special nursing, and it is this class, the born naturalist, that will build up our collections, public and private, not the machine-made naturalist.

Mr. Ashby speaks more than once of the drudgery of skin preparing. If it really becomes a drudgery to anyone, then it is not his hobby—he should give it up and try something else. No success will ever come out of drudgery. You would not describe the work entailed in painting by an artist as drudgery. Preparing skins is a labour, but is certainly not drudgery to the ornithologist.

Mr. Ashby's arguments in favour of the scheme he proposes are extremely poor, and when he suggests that teaching young Australians to shoot and skin small birds will develop in them endurance and character (Mr. Ashby's own words), he must forgive people for smiling. His comparison of bird killing to mosquito and mouse killing is not wise. The birds are killed chiefly to gratify one's pleasure, while the mosquitoes and mice are killed because the one is a public danger and the other the cause of great damage and loss.

With all that Mr. Ashby says as regards the encouragement in youngsters of both sexes of field observation I am in hearty accord, but where he would teach boys to skin the bird they kill, to collect, I would teach them not to kill it, but to watch, and learn from watching. Certain of our members look upon the making of collections of skins as the chief aim in the study of ornithology and affect to look down on the man who follows birds with field-glasses instead of a gun; but nowadays it is realized that the most important work of the avifaunist is not collecting, but the preservation of the bird-life which in every civilized country is decreasing at a rate that gives cause for the very gravest concern. And it is the man with the glasses, the field-worker, who studies the lives of the birds and how best to retain them, will do infinitely more towards preserving our valuable birds for the benefit of ourselves and posterity than he who has cabinets full of skins.

Though I do not collect I am not an anti-collector, except insofar as concerns the juvenile collector, ninety-nine per cent. of whose specimens we know are just so many wasted specimens, generally so many wasted lives. Museums and well ordered private collections are most necessary for the study of birds by ornithologists and for educating the public. It is pleasing to note how the natural history sections of our museums are thronged on a public holiday. As for myself few things give me greater pleasure and interest than looking through a collection of carefully made skins.

I cannot see any way by which private collecting can be regulated so as to cut out the wasteful collector—that is, the man who collects simply to have rarities to show to his friends—but I have great hope in educating the public so that they will realize what the birds are to us, to realize that they are a national asset of the very greatest importance, and without whose alliance we could scarcely exist. Nearly all birds are insectivorous at one time or another; very many of course entirely so. Reduce the birds fifty per cent. and the insect pests will increase a hundred fold. My particular aim is to teach the younger generation *not* to collect, but to *observe*: to observe and record carefully what they see. I reverse the old saying and impress on them that "A bird in the bush is worth two in the hand."

Mr. Ashby rails against our laws, but as he does not mention the Acts he has in view, one cannot express an opinion on the subject beyond pointing out that it is the vastness of our territory that prevents the authorities from fully carrying out the intent of the legislation. But as far as his statement that the legislation referred to "effectually prevents the development of young ornithologists," I entirely disagree. There is no Act does that. The young ornithologist is as free to study and has as much material as ever he was or had. I fear

Mr. Ashby's term "young ornithologist" is only camouflage for "collector."

I would repeat that what avifaunists and the general public have to realize is the *urgency* of *encouraging* and *protecting* our birds, I did not write useful birds because at some time and in some places all birds are useful. Where a bird otherwise useful becomes a pest it will have to be dealt with by local by-law. *Our own comfort, our own welfare depends very largely on the welfare of the birds.* That is what we have to realize and make everyone else realize.

Yours, etc.,

F. L. BERNEY.

"Barcarolle,"
Longreach,
Queensland.
March 6th. 1928.

Review.

MALAY BIRDS.

"The Birds of the Malay Peninsula. A General Account of the Birds Inhabiting the Region from the Isthmus of Kra to Singapore with the Adjacent Islands." By Herbert C. Robinson, C.M.Z.S., M.B.O.U., C.M.A.O.U., late Director of Museums, F.M.S. Vol. I—The Commoner Birds. Issued by Authority of the Federated Malay States Government. Publishers: H. F. & G. Witherby, London, 1927.

This book is one that undoubtedly will be of great value to ornithologists the world over. The present volume is the first published of the five volumes that are to comprise the complete work. It deals with "The Commoner Birds" only. The following volumes will treat of (II) The Birds of the Hill Stations; (III) Sporting Birds; Birds of the Shore and Estuaries; (IV) The Birds of the Low-Country Jungle and Scrub; (V) Open Country and Ricefield Birds, Migratory Birds and other species. These divisions are artificial and unusual in a publication of this description, and it is doubtful if the arrangement will prove wholly satisfactory, as some species must be found in more than one district. Be that as it may, this volume has particular value and interest on account of its lengthy introduction which contains not only a full description of the little known geography of the Malay Peninsula but also informative notices on zoogeography, the history of the local ornithology, nomenclature, migration and bibliography. The classification of the "commoner birds" follows that employed by the late Dr. R. B. Sharpe in his Handlist, 1899-1912. A general account is given of each order and family, followed by particular descriptions of the species and keys, their English and Malayan names, and statements of their ranges both inside and outside Malaya; together with accounts of their nidification and habits. It is a matter of regret, seeing that the commoner birds only are dealt with, that the remarks on their nidification and also on their notes could not have been made fuller. Some allowance for this deficiency has to be made, owing as stated in the introduction to field conditions making observation difficult. There is much field work to be done by ornithologists in Malaya. Twenty-five coloured plates by Mr. H. Grönvold are included in the volume, which is certainly a fine production in every way and ornithologists will await with great interest the publication of the later volumes.

The Australian ornithologist, knowing that Australia and Malaya are equidistant but five hundred miles at their nearest points from Wallace's line, which separates the Australian and Indian zoogeographical regions, will be interested in looking for birds that are common to both countries, whether as identical or closely allied species. Among these, leaving out birds of cosmopolitan range such as ocean and water birds, the following families and species may be noted: *Pandion haliaëtus* (Osprey), excepting South America, a cosmopolitan species; *Haliastur indus* (Red-backed Sea-Eagle) of the Queensland coast; *Haliæëtus* (*Cuncuma*) *leucogaster* (White-breasted Sea-Eagle), which ranges as far south as Tasmania. Both these Sea-Eagles are placed by Mr. Robinson in the *Falconidæ* family and not as in the Australian Checklist among the *Aquilidæ*. *Eurystomus orientalis* (Broad-billed Roller or Dollar-Bird), well known in the coastal districts of Queensland and New South Wales where it breeds. According to Mr. Robinson there is no definite record of its breeding in the Malay Peninsula and its note is "a whistle rather like that of the Mynah." This would not describe the Australian bird's note, which is a harsh guttural chattering. *Caprimulgus macrurus* (Large-tailed Nightjar), of North Queensland; *Cypselus pacificus* (Fork-tailed Swift), which visits even the southern parts of Australia, after nesting in China; *Collocalia* spp. to which genus belongs *C. francica*, the Grey Swiftlet, which nests in coastal caves of North Queensland. Then there are Malayan Coucals and a Malayan Koel; gorgeous Bee-eaters (4 species), Flower-Peckers (12 species), and Sun-Birds (25 species), as the coloured plates show, of each of which before-mentioned families we have in Australia a single representative. Parrots are represented, also Pittas, Orioles and Drongos, Silver-eyes and Weaver-Finches, Warblers and Flycatchers. Among a number of unfamiliar Flycatchers will be found the Malayan Fantail Flycatcher (*Rhipidura javanica*), which resembles *R. setosa*, the Northern

Fantail of N. Queensland, and like the Australian birds of this genus it "places its cup-shaped nest with a tail pendent below it on a small bough."

For the rest, the Malay Peninsula has its Vultures, Hornbills, Hoopoes, Trogons, Barbets and other birds that belong also to foreign lands, and at the same time its Woodpeckers, Robins, Titmice, Wagtails, Pipits and other birds well known to us as birds of England. Altogether, the Malayan avifauna, considering the size of the country, consists of a very large and varied assemblage of bird forms. The total number of species and subspecies within the limits of the Malay Peninsula is stated to be somewhat over 700.—H.W.

From Magazines.

Sky-Larks and Nightingales in Australia.—Mr. A. D. Hardy, writing in the Melbourne *Argus* of January 7, 1928, gives the following informative particulars regarding acclimatization experiments with the Nightingale and Sky-Lark in Australia:

> The recent introduction of four English nightingales to New Zealand reminds us of early efforts in Victoria to acclimatize the songbirds of England. The oldest record appears to be one which may be read in the "Transactions of the Philosophical Institute of Victoria." In the publication of 1857 there is an article "On the Introduction of the British Songbird," by Mr. Edward Wilson, one of the proprietors of the *Argus*. The paper was read in July, 1857. It dealt with British bird acclimatization generally. It appears from Mr. Wilson's paper that the Australian sky-lark, so far as it was then known, was unsatisfying. It certainly flew aloft, but in the hearing of those who had been accustomed to the powerful songster of the English fields its "poor twitterings" were only suggestive. Mr. Wilson told his hearers how in 1850 seven English sky-larks were liberated on the Barrabool Hills, near Geelong, and how they or their descendants were afterwards heard there by persons who, because of familiarity with this bird in its native land, could readily distinguish it from its Australian representative. . . . . Early in 1857 Mr. Wilson, with the assistance of the Rev. John Barry, D.D., arranged for the purchase of some nightingales. A bird dealer named Brown, trading between London, Paris, Berlin, New York, San Francisco, and Valparaiso, had arrived in Melbourne with blackbirds, thrushes, sky-larks, starlings, goldfinches, robins, wood-larks, chaffinches, and nightingales. He had not lost one bird by death, but one blackbird had escaped from a cage and flown out to sea. Six nightingales were purchased at a cost of £4 to £5 each, and temporarily were cared for by Mr. Wilson, who noted their value as insect-eaters. He wrote: "While it takes a smart bird to catch the common housefly, the caged nightingale rarely missed it." The nightingales were transferred to the Botanic Gardens, where a large cage had been prepared for them. During the first night or two native cats killed one and injured another, and when the remaining four were gently released some days later it was found that two

could not fly. These were recaptured and nursed without success, but the two healthy birds were afterwards heard in the shrubbery by passers-by on the river. In the following spring Mr. Wilhelmi, an employee of the gardens, who had lived in Germany, where nightingales were common, both saw and heard one of the birds. It looked very healthy and sang cheerfully.

This partial success led to Mr. Wilson's vigorous attempt to interest the Government in acclimatization generally. He did not think the price paid for the nightingales extravagant in the circumstances, but he considered that if they were brought out in numbers directly, bought on reasonable terms in England or Germany, and "entrusted to the care of some intelligent cabin passenger, with the paid assistance of a steerage passenger, in one of our clipper ships, they ought to be landed here at probably one-fourth of the sum paid." The Botanic Gardens were held to have special advantages as a habitat, but "close neighbourhood to town would be objectionable, as exposing them to destruction at the hands of the Cockney shooters who abound there, and who are apt to show themselves less anxious as to the size or value of their game than glad to get something alive to shoot at." It was proposed to put the nightingales at Heidelberg, in the hope that they would spread up and down the river, and, if nesting there, winter perhaps north of the Murray. "Such interest do I take in the experiment," said Mr. Wilson, "that if it should be taken up by anyone else I would willingly subscribe to aid in giving it a fair trial; but in any event I will try what I can do in that way myself, and, with life and health, it will go hard with me if I do not succeed." He urged the Philosophical Institute to influence the Government to make an annual grant—a Parliamentary committee having just recommended the the allotment of a sum of £3,000 for experiments in introducing new animals—for the acclimatization of British songbirds.

The attempts at acclimatization of the English nightingale seem to have ended here, but it is clear, from the reports of the Acclimatization Society, that a large importation of songbirds began in the 'fifties, and systematically continued for many years as the result of Mr. Wilson's enthusiasm and activities. He was president when Sir Charles Darling, as Governor, encouraged his efforts. In co-operation with him were men who became life-members of the society, among them being Mr. J. McHaffie, of Phillip Island; Messrs. S. C. Henty and T. Learmonth, of the Western district; Mr. Angus McMillan, of East Gippsland; and in the city, Mr. Sargood, Baron von Mueller, and others. The records of the society make interesting reading. They tell of the systematic distribution of birds and animals to selected localities, and of the export of native fauna, and dingoes, and kangaroo dogs. In the early 'sixties the Botanic Gardens were receiving blackbirds, thrushes, quail, canaries, robins, doves, Java sparrows, minas, and English wild duck. To Phillip Island went pheasants, quail, sky-larks, blackbirds, and white swans; to Yarra Bend, thrushes and sky-larks; and to Sydney, thrushes, sky-larks, and blackbirds. The liberation at Phillip Island in 1864 included game birds, English wild duck, and six starlings. Says the report of that year's work and prospects: "The nightingale and hedge sparrow have been promised us by benevolent ladies at home, and the Queen herself has made an effort to supply us with the rook. To other friends we are indebted for the gazelle and the edible crab." Sparrows from China, England and Java were liberated at St. Kilda, Pentridge, and Ballarat respectively. . . . . The chances of successfully introducing the nightingale are slight, owing to the fact that the bird nests on or near the ground, and would fall a ready prey to that steadily increasing pest and destroyer of insectivorous birds, the stray domestic cat.

* * *

Settlement and Bird-Life.—The rural writer of the *West Australian* (Perth) contributed the following note in the issue of November 22, 1927: "By altering the water supply of a district (as is being done by the introduction of big water schemes in the wheat belt) it will be found that the distribution of bird-life is entirely altered. This is particularly noticeable on the present fringe of the wheat belt, as at Wilgoyne, where the Galahs now stop in residence all the year round instead of being migratory and have increased in number until they have become a veritable pest to the wheat-grower. The common Twenty-eight Parrots and Smokers have also increased to such an extent that their numbers will have to be reduced on account of the damage they do to the grain. Right through the new station country that is now being opened up, the bird-life is developing and altering amazingly. Vast stretches of country that were at one time practically devoid of bird-life, excepting just before and after heavy rains, now carry all the year round flocks of Parrots, Cockatoos and other birds in the vicinity of the station wells; before this influx of raucous-voiced visitors the shyer denizens of the bush seem to retreat farther out."

Obituary.

PROFESSOR L. HARRISON.

Professor Launcelot Harrison, Professor of Zoology in the University of Sydney, died suddenly on February 20, 1928, at Narooma, a holiday resort on the South Coast of New South Wales.

Professor Harrison, who was only 47 years of age, was one of the most distinguished zoological students ever produced by Australia. A native of Wellington (N.S.W.), he was educated at The King's School (Parramatta), Sydney University, and Cambridge. During the war he was attached to the Army Medical Service with the British Forces in Mesopotamia, attaining the rank of captain. Later he became lecturer in zoology at Sydney University, and he succeeded the late Professor Johnson as professor of zoology. Professor Harrison during recent years had been president of the Linnean Society, president of the Royal Zoological Society, and a general stimulus to both scientific and popular natural history in other societies and in the community generally. He was an able ornithologist and at one period took an active interest in the R.A.O.U.

In all his work he was always greatly furthered by his wife, who as Amy Mack is widely known as a graceful writer on natural history.

Council Meetings, R.A.O.U.

September 19.—Satisfaction was expressed at the receipt of a letter from the Tasmanian Attorney-General stating that from the 11th August Cape Barren Geese would be wholly protected in that State.

The Fisheries and Game Department (Victoria) forwarded a notification that all Grass Parrots (*Neophema*) are now protected in Victoria during the whole year.

Further consideration was given to a suggestion that the Bird Observers' Club be constituted a Committee of the Union with certain powers to act for it. It was decided eventually not to disturb the previous decision for affiliation.

Captain E. V. Sanderson wrote suggesting that the Union devote more attention to investigating the economic value of birds. The suggestion was regarded as an excellent one. But the question is a very wide one and demands the attention of observers with some leisure. It was pointed out that the columns of *The Emu* are open to any member with ideas on this important question.

* * *

October 12.—The Chief Inspector of Fisheries (Victoria) wrote inviting the Council to appoint two delegates to accompany him to the Mutton-Bird rookery at Cape Woolamai. He also pointed out that there was no law under which the private land at the Cape can be resumed as a national park.

* * *

November.—On account of the absence of members at Congress and elsewhere the Council did not meet during November.

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December 14.—Further communications were read regarding the lack of interest in the economic side of ornithology. Definite practical suggestions will be welcomed as to how the Union may best deal with the matter.

The Chairman presented a report on behalf of the delegates who accompanied the Chief Inspector of Fisheries to the Mutton-Bird rookeries at Phillip Island. Definite action is to be taken at an early date by the Union and other kindred societies in order to arrest the destruction of the nesting-places.

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January.—No meeting held.

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February 8.—A letter was received from the State Secretary for New Zealand (Mr. Oliver) indicating that members in the Dominion would be glad to have the 1928 Congress held in

Wellington, and that arrangements for Congress and Camp-out could be made in the time available. Pending receipt of the views of interstate members of Council, it was agreed to ask New Zealand members to suggest a suitable date.

Discussion arose regarding the Presidential address printed in the January *Emu* and the editorial addendum thereto. Two motions on the general subject were framed for submission to all members of Council. One motion aimed at repudiation of the views advanced in the Presidential address, and the other advocated that editorial comments should not deal with matters of opinion but only matters of fact.

A careful and interesting report on the state of the Mutton-Bird rookeries on Phillip Island was submitted by Mr. A. G. Campbell. Copies are to be sent to interested parties.

Further complaint was received regarding the action of Melbourne members of the Council in respect of office-bearers. While the volume of protest showed clearly that some revision was necessary, it was considered that the imputation of motives was uncharitable. Several interests are represented on the Council in Victoria, and members are asked to accept the assurance that there is no desire to make partisan nominations for other States.

Notes and Comments.

The Council of the R.A.O.U. has decided that the next Congress and Campout shall be held in South Australia. A cordial invitation was received from New Zealand, but the Articles of Association limit the meeting-places to Australia. Steps are to be taken to amend the Articles.

* * *

The Hon. General Secretary of the R.A.O.U. has a note from a member who is willing to sell a complete set of *The Emu* and also a set of Mathews' *Birds of Australia.*

* * *

It is an astonishing and lamentable fact that there are very many members of the R.A.O.U. who have not paid their subscriptions for the current year. In most cases this omission is due to carelessness. Such members are invited to be more thoughtful. The Union is conducted on an entirely honorary basis, and the Secretary and Treasurer have quite enough to do without pursuing members who default, however unwittingly.

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Date of publication of this part of *The Emu*, April 3, 1928.

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